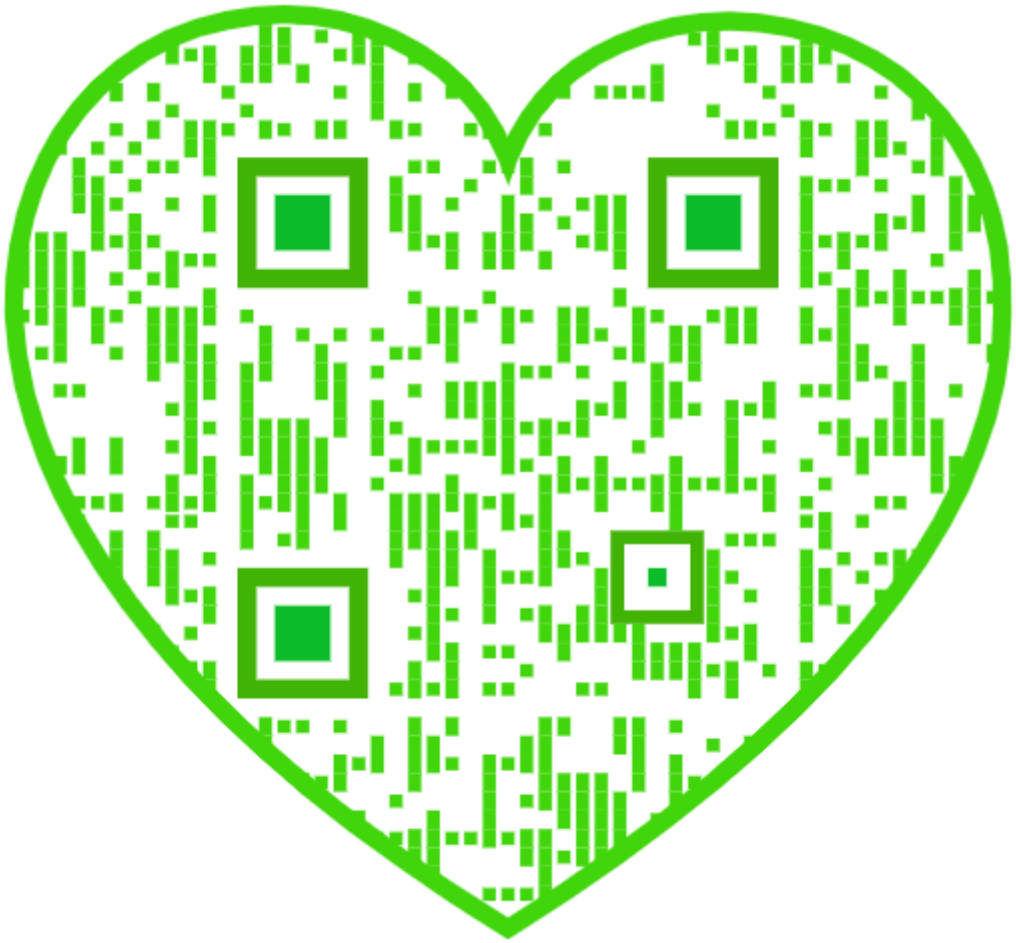
THE FARMER'S READY REFERENCE,

OR HAND-BOOK OF

DISEASES OF HORSES AND CATTLE.

SF
751
.07



LIBRARY OF CONGRESS.

Chap. SF151 Copyright No.

Shelf .O7

UNITED STATES OF AMERICA.

L. Q. Qu. U. S.

THE FARMER'S READY REFERENCE;

OR

HAND-BOOK

OF

Diseases of Horses and Cattle.

A SHORT AND PLAIN DESCRIPTION OF THE ORDINARY DISEASES OF HORSES AND CATTLE, WITH SIMPLE, PRACTICAL RULES FOR THEIR CARE AND TREATMENT.

LIBRARY OF CONGRESS COPYRIGHT CITY OF WASHINGTON

By S. C. ORR, V. S.,

GRADUATE OF THE ONTARIO VETERINARY COLLEGE, OF TORONTO, CANADA; VETERINARY EDITOR TO KANSAS FARMER, TOPEKA, KANSAS; HOME, FIELD AND FORUM, GUTHRIE, OKLA.; AMERICAN FARMER AND FARM NEWS, SPRINGFIELD, OHIO.

40359-2

PUBLISHED BY

S. C. ORR, V. S.,

MANHATTAN, KANSAS.

1894.

Copyrighted, 1894, by S. C. ORR, V. S.
(All Rights Reserved.)

Parties desiring to confer with the author will find full directions in business card in back part of this book.

MANHATTAN, KANSAS:
MERCURY PUBLISHING HOUSE.
1894.

To the Farmers of the State of Kansas, as a Token of Appreciation of Their Efforts Toward the Improvement of Live Stock, is This Work Respectfully Dedicated by

THE AUTHOR.

AUTHOR'S PREFACE.

In preparing this little volume, the aim has been to make it just what its title implies, namely, a ready reference. The average farmer, with the many cares of agricultural life upon his mind, has no time to read elaborate works upon the scientific treatment of disease and store away knowledge for future use in the case of an emergency, as does the practitioner who has had the advantage of a collegiate course in veterinary science, but, on the contrary, he needs something to which he can refer with the shortest possible delay in the immediate time of need. With this in mind, the object has been to avoid everything that savored only of unproven theory; to make use of no mystifying technicalities; but to set forth every detail in as plain and concise a manner as possible.

While it is always advisable to place the treatment of sick or lame animals in the hands of a qualified veterinarian when it is possible to do so, yet it must be admitted that many farmers living in remote localities find it impossible to call such an individual in time to save an animal's life; to these especially, is this work recommended.

No great claim to originality is made; but with a knowledge gained from the works of Professors Williams, Fleming, Steele, Smith, Salmon, Baker, Liautard and others, together with a collection of ideas gathered from an extensive and varied practice, I have endeavored to select and compile a compend of methods of treatment and remedies, such as the stock owner or farmer can readily understand and apply with the conveniences at hand, and with the best chance of success.

With the hope that this little book may meet with the kind approbation of those for whom it is intended, it is launched upon its journey for better or for worse.

THE AUTHOR.

PART FIRST.

Diseases of the Horse,

THEIR CAUSES;

THEIR SYMPTOMS;

THEIR TREATMENT.

INTRODUCTION.

In order to facilitate the understanding and carrying-out of the instructions given in the succeeding pages, a few hints are necessary, upon the recognition of disease, the nursing of patients, and the administering of medicines.

How to Recognize Disease.

Before anyone can readily recognize the symptoms of disease it is first necessary to become thoroughly acquainted with the habits, actions, and general appearance of our domesticated animals in a state of health. It is not necessary that a horse should be loaded with fat to be healthy; but there is a sleek, thrifty appearance of the coat; a clear, bright look of the eye; a strong, elastic step, and a good and regular appetite, all of which are indications of a healthy condition; while, on the other hand, a rough, staring coat, a dull, listless eye, a sluggish, tottering gait, a poor or irregular appetite, are all signs, either of disease of the animal or of bad management on the part of the attendant, and demand an investigation at once as to the cause. The pulse, which may be found at the angle of the lower jaw where the artery passes to the outside of the jawbone, is an indicator of the condition of the animal's health. The normal beat of the pulse is from thirty-six to forty per minute; anything above forty is indicative of fever. The respirations, also, should be taken into consideration. When the animal is in health and free from excitement, the number of respirations per minute are

from ten to fifteen; anything beyond fifteen being a deviation from the normal. The temperature is ascertained by inserting a clinical thermometer into the rectum for two or three minutes. The normal temperature of the horse is 98.5 degrees Fahrenheit. A degree above the normal is not generally looked upon as anything serious; but a rise of several degrees is a sure sign of a fevered condition of the system.

Nursing and Feeding.

A good nurse is of as much importance as a good doctor. A careless or indifferent person should never be intrusted with the care of sick animals There should always be plenty of fresh, pure air, but all drafts or currents should be avoided. The patient should always be clothed according to the condition of the weather. In very cold weather a woolen blanket is best; but in moderate weather a cotton covering is more comfortable; and in very warm weather a thin sheet should be used to keep off the flies. The stall should be kept clean and free from filth. There can be no fixed rule laid down for feeding. Some horses, like some people, when sick seem to have peculiar whims in regard to their food that only the most careful and judicious nurse knows how to gratify. All food should be clean and easy of digestion. Cooked food is best, but some animals will not eat it. Feed whatever of the grains an animal will eat best and give it wet or dry as seems best to suit the taste. Give green grass when obtainable; at other times give clean, sweet, well-cured hay. Food of all kinds should be given in small quantities, and often. As a general rule, water can be given freely. A good plan is to keep a pail of cool water where the patient can go to it at will. A horse with a fever will go to the bucket and rinse out and cool his mouth when he does not want to drink.

Administering Medicines.

Always first determine what the disease is, then select the remedy best suited or recommended for that disease. When a selection is once made give the prescribed dose and then wait a sufficient length of time for the result, and do not get impatient and repeat the same or give something else that some disinterested bystander recommends as a "sure cure." Many horses are killed every year by over-dosing that, if left alone, would have gotten well without any treatment. Medicines are always most conveniently given in the food or drink, when it can be done; but some drugs have such a disagreeable odor or taste that no horse will take them in this way. Some medicines, as aloes, are best made into a ball and placed well back on the tongue. Powders can be put into a large spoon and placed well back on the tongue, and the head held up until the medicine becomes mixed with saliva. But as the most common way of giving medicine is by drenching, we will describe the best plan of performing that operation: First, always drench through the mouth, and not through the nose. Second, do not pull the horse's head up with the halter, but take a rope ten or more feet long; tie a loop a foot long in one end; now pass this loop down inside of the nose-piece of the halter and place it in the animal's mouth; now throw the other end over a beam, or a limb of a tree, and pull on it till the head is as high as you want it; now, while an assistant holds this rope, you can open the side of the mouth with one hand, while with the other you insert the neck of the bottle or drenching horn and pour the medicine in, a little at a time, to avoid choking the horse. This holds the head up by the upper jaw, while the lower jaw is left free to work up and down and work the medicine back. The tongue should never be pulled out or held by the hand, as it does no good and increases the danger of choking. All medicines to be given

in drenches should be well diluted and, if of an irritating nature, they can be more safely given in raw linseed oil, sweet milk, or gruel of some kind. The dose should also vary to suit the condition and temperament of the animal. An old and debilitated patient, or one with a highly-nervous temperament, will require a smaller dose than one in fair flesh or with a sluggish temperament. The doses, as given in this work, unless otherwise stated, are always intended for grown animals. By observing the following table the dose for any age may be easily ascertained :

Doses, Graduation Of.

Horse.	Ox.	Dose.
3 or more years ...	2 or more years .	1 part
2 years	1½ years.....	½ part
1 year...	1 year.....	¼ part
6 months	6 months	⅛ part
1 month	1 month	1-16 part

Measuring Doses.

As facilities are not always at hand for accurate weight or measurement of doses, an approximate measure may be attained by the following table :

LIQUIDS—
A teaspoonful equals 1 fluid drachm;
A tablespoonful equals half a fluid ounce.

ROOTS OR BARKS, POWDERED—
A teaspoonful equals two-thirds of a drachm;
1½ tablespoonfuls equal half an ounce.

POWDERED HERBS—
3 teaspoonfuls equal 1 drachm;
3 tablespoonfuls equal half an ounce.

SALT, SALTPETRE, SULPHUR, ETC.—
A teaspoonful equals 1 drachm.

SUGAR OF LEAD, SULPHATE OF ZINC, ETC.—
A teaspoonful equals 1½ drachms.

Care of Medicines.

Liquids should be kept in bottles tightly corked. Powders also retain their virtues longer if kept in wide-mouthed bottles, well corked from the air. Each bottle, box, or package should be properly and plainly labeled, to prevent mistakes. All vessels in which medicines are mixed should be kept scrupulously clean. Medicines allowed to stand in tin or other metallic vessels not only lose their curative qualities, but sometimes become positively injurious.

Medicines—How to Mix Them.

Wherever a medicine is recommended throughout this work without giving its mode of preparation, the formula, with full directions, will be found under this heading. The dose given here is always for grown animals; the dose for younger animals can be ascertained from the table on, Doses. Graduation of

Physic for Horses.

Barbadoes aloes; dose, 1 ounce. The powdered aloes may be mixed into a ball with oil or glycerine, or they may be dissolved in a pint of warm water and given as a drench.

Raw linseed oil is sometimes used. Dose, 1 pint to a quart.

Physic for Cattle.

Epsom salt is used, because of its prompt action. Dose, 1 to 2 pounds. Dissolve the salts in half a gallon or more of warm water, and give as a drench.

As a mild physic, raw linseed oil may be given in doses of from 1 to 2 quarts.

Melted lard may be used in the same quantities

Ammoniacal Liniment.

Oil, raw linseed or olive; turpentine and aqua ammonia, equal parts, mixed. To blister, rub in well three times a day.

White Lotion (Healing).

Sugar of lead, 1 ounce; sulphate of zinc, 6 drachms; carbolic acid, 2 drachms; rain water, 1 quart. Apply to the wound two or three times a day with a syringe or a soft sponge.

Biniodide of Mercury Blister.

Biniodide of mercury, 1 drachm; lard or vaseline, 1 ounce. Mix well together with a spatula. Rub in a small quantity with the hand for fifteen minutes; tie the horse's head up for twenty-four hours, then grease the blister and turn the horse loose.

Cantharidine Blister.

Powdered cantharides, 1 drachm; lard or vaseline, 1 ounce. Mix and keep hot for one hour, but do not burn. Apply same as the biniodide of mercury.

RESPIRATORY DISEASES.

Distemper.

This is a common term used by the farmer or ordinary horseman for any or all diseases in which there is a discharge from the nostrils, sore throat, and difficulty in breathing. But as these diseases require treatment, according to the organs affected, each one will be treated separately.

Catarrh.

Catarrh, or common cold, is simply a congested or inflamed condition of the mucous membrane lining the nasal chambers and other cavities of the head.

CAUSES.—Cold, damp stable; standing in a draft of air; driving against a cold wind; standing without blanketing after rapid driving.

SYMPTOMS.—Dullness; discharge from the nostrils, probably thin at first, but growing thicker; sometimes constipation, and scant, high-colored urine.

TREATMENT.—Place the patient in a well ventilated stable, and blanket if the weather is cold. Feed moderately on bran or oats and hay, and keep a pail of clean water where he can drink at will. Give from one to two drachms of nitrate of potash three times a day, either in the feed, water, or on the tongue.

Strangles, or Colt Distemper.

This disease is often called colt distemper because colts rarely ever escape it, very few horses reaching the age of five

years without an attack. There are two forms of this disease: the regular, and the irregular or malignant form. The name, strangles, originated from the difficulty in breathing. The regular form generally runs its course in from ten to fifteen days, while the irregular form may last as many weeks. This disease may occur at any season of the year, but is generally most severe during the spring months.

SYMPTOMS.—In the regular form the symptoms are somewhat similar to those of catarrh. There is dullness; discharge from the nostrils, pulse and breathing slightly quickened and a rise of two or three degrees in temperature. There is also swelling of the throat and of the glands underneath the jaws. In the irregular form the fever often runs very high; abscesses form on different parts of the body, and may form on the inside, where they generally prove fatal. As the disease progresses the legs swell; the appetite fails; great prostration follows, often resulting in death.

TREATMENT.—In the mild form, blanket and stable the animal according to the season; feed on nutritious, laxative diet, and give, three times a day, a heaping teaspoonful of the following: Powdered gentian root and nitrate of potash, of each equal parts, mixed. If the throat is tender, rub in three times a day till sore, a little of the following: Raw linseed oil, turpentine, and aqua ammonia, of each equal parts, mixed. When abscesses form they should be opened and syringed out once or twice a day with carbolic acid, two teaspoonfuls and water one pint. If the symptoms become more severe, running on toward the irregular form, stimulants and tonics will be necessary. Nitrous ether, from 1 to 2 ounces, and quinine, 20 grains, should be given three or four times a day. The discharge from the nostrils, in either form, can be greatly facilitated by steaming

over a pail of hot water into which has been put a tablespoonful of turpentine to the gallon of water. If the swelling in the throat should become so severe as to threaten strangulation, the only hope will be in tracheotomy, and as this will require the services of a veterinarian we will not describe the operation.

Influenza or Pinkeye.

This is a special form of catarrhal influenza, known by the various names of influenza, pinkeye, epizootic, epizootic cellulitis, etc. This, like the other distempers, seems to be contagious, either by direct contact or by the infection carried in the atmosphere.

SYMPTOMS.—Dullness; loss of appetite, a short cough, a dry, hot mouth, eyes somewhat inflamed and watery, ears and legs cold, pulse rapid but weak, and the throat sometimes swollen and tender to the touch. If the disease runs for some time without treatment it often becomes complicated with pneumonia, rheumatism, or some other disease; it then becomes more serious and must be treated according to the instructions given elsewhere for the treatment of such diseases.

TREATMENT.—First of all the animal should be placed in a clean, well-ventilated box stall, and clothed according to the weather. The food should consist of bran mash, boiled oats, and any other laxative, digestible food the animal will eat. A little sweet hay should always be within reach; also a pail of clean, fresh water. As there is great danger of strangulation in drenching, because of sore throat, all medicines should be given either in the water or by placing it on the tongue. A drachm of nitrate of potash should be given three times a day in the first stages of the disease; but if the patient becomes much debilitated the potash should be discontinued. From a half to one ounce of sulphite of soda should be dissolved in the drinking water during

each twenty-four hours. If there is much weakness an ounce of spirits of nitre should be diluted and given with a syringe three times a day; and, if there is much difficulty in breathing, half an ounce of fluid extract of lobelia may be added to each dose. The throat should be rubbed several times a day with turpentine, oil, and ammonia, in equal parts, until the skin gets sore. The legs should be well rubbed with the hands or wisps of hay, then bandaged. The treatment should continue until the horse is entirely well.

Laryngitis.

Laryngitis simply signifies sore throat or inflammation of the larynx.

CAUSES.—Exposure to cold; standing in a stable where a current of cold air passes; driving rapidly against the wind, etc.

SYMPTOMS.—The first symptoms noticed generally are dullness, slight swelling of the throat and soreness upon pressure. There will be difficulty in swallowing, and when attempting to drink the water will run out of the nostrils. The mouth will be dry and hot, the pulse very quick in severe cases, and there will be a discharge from mouth and nostrils both; the discharge will be colored from the food the animal has been eating, sometimes leading to the mistaken idea of glanders. The breathing will be loud and difficult, and in very severe cases there is danger of choking.

TREATMENT.—Put the animal in a box stall and give plenty of pure air. Mix equal parts of powdered chlorate of potash and licorice root and place a heaping teaspoonful well back on the tongue three or four times a day, after first rinsing the mouth with cool water. Mix equal parts of turpentine, raw linseed oil, and ammonia and apply to the throat every two hours until the skin becomes tender. If the breathing is very difficult, inject, with a small syringe, a half ounce of fluid extract of lobelia well

back on the tongue once every two hours till relieved. Do not attempt to drench or you will strangle the animal. Keep a pail of clean, cool water where the patient can get to it, and feed on bran mash and a little fine hay.

Bronchitis.

Inflammation of the bronchial tubes may follow any of the other respiratory diseases, or it may come on as a primary disease.

CAUSES.—The exciting causes are the same as in other catarrhal diseases. The inhalation of smoke, also, will cause it, as in the pernicious habit some people have of smoking with old rags, leather, feathers, etc., for distemper.

SYMPTOMS.—A dryness of the throat and a rasping sound in the breathing; soreness of the chest just above the breast bone when pressed with the hand; a gurgling, snoring sound heard by placing the ear against the windpipe. Sometimes a soft, deep, subdued cough accompanied by great pain. Pulse and temperature both run high.

TREATMENT.—Give one drachm of nitrate of potash on the tongue three or four times a day, and rub the chest in front and on the sides with the ammoniacal liniment, as recommended in laryngitis and other affections of the throat. If the breathing is very difficult and painful, throw back on the tongue, with a syringe, half an ounce of laudanum or fluid extract of lobelia every two hours until relief is obtained. If the patient is very weak give an ounce of spirits of nitre in the drinking water three times a day.

Nasal Gleet.

This is a chronic discharge from one or both nostrils. It may be the result of a neglected case of strangles or it may come from some injury to the bones of the head. Sometimes a decaying tooth will cause it.

SYMPTOMS.—A whitish or yellowish discharge from one or both nostrils, but does not adhere and close up the nostrils like that of glanders. If there is a very bad odor it is the result of diseased bone or decayed teeth. The teeth should always be examined. An enlargement can sometimes be seen on the outside of the bones.

TREATMENT.—If the discharge comes from a diseased tooth, the tooth must be removed by trephining, an operation which requires the skill of a surgeon. But, if the discharge is only due to an inflammation of the membrane lining the nasal chamber, it may sometimes be dried up by giving two drachms of sulphate of copper and five grains of powdered cantharides twice a day, and blistering the out side of the nasal bones with biniodide of mercury, one drachm, and lard, one ounce. Feed the animal well to build up the system.

Heaves or Broken Wind.

This disease may follow any of the distempers. It also comes from feeding on mouldy or dusty hay.

TREATMENT.—When this disease is of long standing it is incurable. A teaspoonful of pine tar placed well back on the tongue two or three times a day will sometimes relieve it. All hay and grain should be moistened with lime water, and hay should be given in small quantities, taking care not to have the animal too full on first starting out to work.

Epistaxis or Nasal Bleeding.

Sometimes this comes from an injury or from violent exertion.

TREATMENT.—Bathe the head and face with cold water, and let a stream of cold water fall two or three feet and strike the loins.

Congestion of the Lungs.

This is stagnation of blood in the lungs and is always the forerunner of inflammation, which can often be prevented if treated early.

CAUSES.—Driving against a cold wind; rapid driving when in a debilitated condition, especially when just recovering from any of the distempers; standing in a cold current in the stable, or standing out without a blanket after driving often produces it.

SYMPTOMS.—The horse becomes sluggish, stops, stands with his fore feet spread apart; stretches his head forward and gasps for breath; his nostrils flap; his flanks heave and he often seems about to suffocate; the eyes have an anxious look; the body shivers as with ague, and cold sweat breaks out all over it.

TREATMENT.—Treatment must be prompt. Remove all pressure upon the chest or throat from harness or saddle; blanket the body; give plenty of fresh air, and cold water in small quantities, but often; rub the body dry with wisps of hay and cloths; give from one to two ounces of spirits of nitre and one-half to one ounce of laudanum or fluid extract of lobelia in half pint of water. This should be given at once and repeated in one hour if the symptoms do not abate. It is best given with syringe. After the distressing symptoms have been relieved the animal should have two drachms of nitrate of potash and one drachm of sulphate of cinchonida every four hours for at least twenty-four hours. This may serve to ward off inflammation of the lungs.

Pneumonia or Inflammation of the Lungs.

This is inflammation of the lung substance proper.

CAUSES.—Same as in congestion.

SYMPTOMS.—The horse stands with head down and ears generally drooping; breathes short and quick and the mouth is

dry and hot. The pulse, in the beginning, is quick and strong; but grows weak as the disease progresses. If the ear is held against the side a rasping sound is heard like two pieces of dry leather rubbing together. The horse will not lie down but remains in a standing posture. The temperature may run up as high as 106 degrees and yet not prove fatal.

TREATMENT.—The horse should be turned loose at once in a box stall and blanketed according to the season. He must have plenty of fresh air, but a current of air must not strike him. If the pulse is full and strong give him ten drops of tincture of aconite every two hours until the pulse begins to decrease in power and frequency, but it must not be continued after the pulse becomes weak. The aconite should be diluted and given on the tongue with a syringe. If the animal is weak and the pulse low an ounce of spirits of nitre should be given every two hours, instead of aconite, for the first twelve hours, then give it every four hours, then three times a day, as needed. If there is much distress in breathing add one-half ounce of laudanum to each dose. From the first, give two drachms of nitrate of potash and one drachm of sulphate of cinchonida every four hours until the fever is broken, then three times a day while convalescent. Also, from the first, a liniment made of equal parts of linseed oil, turpentine, and ammonia should be rubbed into the sides of the chest once every hour until the skin becomes sore, then just often enough to keep it so. I consider these last two most important of all. A pail of fresh water and a little hay should be within reach at all times. Bran, oats, or corn, as the animal eats best, should be given judiciously, but not left before it long at a time if it does not eat it. If the legs are cold, rub and bandage them. Much depends upon the good judgment of the nurse in treating this disease.

Pleurisy.

Pleurisy is inflammation of the membrane covering the lungs and lining the thoracic cavity. It is often complicated with pneumonia. The causes are the same in both.

SYMPTOMS.—The symptoms are somewhat similar to those of pneumonia. In addition there is a short, hacking, suppressed cough, and the breathing is shorter. There is always a hollow place passing from the flank downward and forward along the lower ends of the ribs, known as the pleuritic ridge, and when you attempt to move the horse he acts as if stiff and gives a short grunt at every step. He does not lie down, even at night.

TREATMENT.—Same as in pneumonia. If there is great prostration two drachms of muriate of ammonia should be added to each dose of nitre, and, if the heart is labored, twenty drops of tincture of digitalis may be given three times a day. If this disease is taken at the start it generally yields to treatment, but if allowed to run four or five days the chest begins to fill with fluid and then it becomes serious, and requires the most skillful treatment.

Hydrothorax.

This is the fllling of the chest with water as the result of pleurisy. If it is not checked the horse may live two or three weeks, but finally dies of suffocation. It is impossible for the novice to treat it. A skillful veterinarian should be called at once.

Roaring.

Heavy and wind-broken horses are often called roarers, but there are some in which the difficulty is in the throat instead of in the lungs. It is due to a thickening of the membrane lining the larynx, and finally a wasting of the muscles of the larynx. When it is of long standing it is incurable.

SYMPTOMS.—A loud roaring or whistling noise when the horse is pulled hard or driven fast.

TREATMENT.—This can only be palliative. A sharp blister on the outside of the throat, and from one to two drachms of iodide of potash given twice a day for a week, may relieve it for a time.

Chronic Cough.

This is generally the result of some previous disease. It may come from the throat only and is then short and hacking, or it may come from the lungs and in that case will be deep and hollow.

TREATMENT.—Give a tablespoonful of the following powder in feed three times a day: Powdered anise seed, fœnugreek, Jamaica ginger, nitrate of potash, and muriate of ammonia, equal parts, mixed. Blister the throat if the cough is hacking.

Purpura Hemorrhagica.

Although this is a disease of the blood it generally follows some one of the respiratory diseases; therefore, I give it with them.

CAUSES.—It comes from an impoverished condition of the blood, the result of debility from some other disease. The watery portions of the blood ooze through the walls of the blood vessels and settle under the skin of the most pendant parts.

SYMPTOMS.—The pulse becomes weak and wiry, and there is great debility; the mucous membrane of the eyes and nostrils is studded with red or purple spots. The legs, head and under the belly swell rapidly, the swellings ending very abruptly as though a string was tied around the limb.

TREATMENT.—Treatment is not generally satisfactory unless in the hands of a good physician. A half pint of raw linseed oil and one-half ounce of turpentine should be given at once and repeated every morning thereafter. Mix together two ounces of

tincture muriate of iron, one ounce tincture of gentian, one drachm fluid extract of nux vomica, and one ounce of water and give one tablespoonful in three times its bulk of water, with a syringe, every two hours. The swellings may be bathed with cold, salt water, but use no strong liniments on them.

Recapitulation

On the Treatment of Respiratory Diseases. Pure air for breathing, and warm clothing for the body are both indispensable. Never give a physic; but open the bowels with injections of warm water. Give plenty of fresh, cool water to drink. Never drench when the throat is sore. Dilute all strong medicines before giving.

DISEASES OF THE ALIMENTARY CANAL.

Teeth.

As the teeth are the principal organs by which the food is prepared to enter the stomach, it is necessary that they are sound and in good order. Young horses often suffer during their second dentition. Sometimes the old caps of the milk teeth fail to shed and remain wedged in between the permanent teeth as they grow out. When this happens they should be removed with a pair of forceps.

By reason of a difference of width in the upper and lower jaws the teeth become so worn as to leave sharp points on the outer edges of the upper teeth which lacerate the cheeks, and on the inner edges of the lower teeth which lacerate the tongue. Also, sometimes one of the grinders is broken off by biting upon some hard substance in the feed; and then the tooth in the jaw opposite, receiving no pressure, soon extends into the vacancy and causes great inconvenience in eating. Slobbering, cudding the hay, and taking a mouthful of grain and letting it drop again are indications that something is wrong with the teeth. The long teeth should either be extracted or cut off and the sharp points should be dressed down. Special instruments, as well as experience, are necessary in such cases, and the best way is to go to a good veterinary dentist.

Wolf Teeth.

The so-called "wolf or blind teeth" are the great bugbear of the quack. The term "wolf" is a misnomer applied by early-day horsemen as signifying something harmful or destructive, as these teeth were supposed to affect the eyes. A more appropriate name would be REMNANT TEETH, as they are simply the remnants of teeth once functionally developed and which, through the process of evolution, have diminished to their present size and inconstancy. They have no effect upon the eyes whatever.

Tongue.

Sometimes the tongue becomes sore from cutting on the teeth or other cause. Dissolve an ounce of alum in a pint of water and apply three times a day.

Lampas.

This is not properly a disease; but rather a condition consequent upon the process of dentition. Do not burn them out with a hot iron, but, if greatly gorged with blood, scarify the gums with a sharp knife. All that is necessary generally is to rub the gums with powdered alum and give the horse soft feed for a few days.

Choking.

Sometimes a horse, when feeding upon dry oats or ground feed, will get some of it lodged in the gullet and become choked. Moving around or making him jump over some object will generally remove it. Give him a couple of ounces of oil, or dissolve a teaspoonful of saltpetre in two ounces of water and pour down his throat, then rub the outside of the neck with the hand. If these remedies fail, seek a veterinarian, as it is not safe for the uninitiated to attempt to use the probang.

Indigestion.

Indigestion may be acute, coming on quickly, or it may be chronic, coming on slowly. But, as the acute form is the forerunner of, and generally ends in, flatulent colic, it will be fully treated under that head; hence, only the chronic form will be considered here.

Chronic Indigestion or Dyspepsia

Is a very common disease among horses. It is generally the result of irregular and injudicious feeding. It comes on slowly, and therefore is not noticed until it has a fast hold upon the animal.

SYMPTOMS.—The horse has a rough, staring coat and a dull appearance generally; the appetite varies; sometimes he eats fairly well, but at other times the food remains untouched; he eats very little hay at any time. The bowels are sometimes loose and at others constipated; the manure is of a pale or clay color and the animal often has slight attacks of colic. If you put your hand back in his mouth the saliva from the tongue has a foul odor.

TREATMENT.—Give five to eight drachms of Barbadoes aloes combined with one drachm of calomel. In twenty-four hours begin with the following, giving a tablespoonful three times a day: Powdered charcoal, bicarbonate of soda and gentian root, equal parts, mixed. The feed should be bran and oats and good hay. A little salt should be given once every day, and the animal should be watered half an hour before each meal but not soon after the meal.

Flatulent Colic.

Although the word colic, in its true sense, signifies pain in the colon, yet popular usage has applied it to pain in any part of the abdomen.

Flatulent colic is the result of acute indigestion and is characterized by an accumulation of gas in the stomach and intestines, accompanied by violent pain. Sometimes it results from the fermentation of food that has been washed or crowded out of the stomach before it had been thoroughly digested; in that case the stomach is not so much involved. This is often the result of feeding grain first and then giving water soon afterward.

SYMPTOMS.—The horse will become uneasy; look back at his sides; paw a few times, then lie down and stretch out upon the ground. As there is no visible bloating the owner is often at a loss to know what the trouble is. Sometimes the animal will get up and stretch out as if to urinate; then the novice pronounces it "stoppage of the water." This is the stage which veterinarians term acute indigestion. The whole trouble lies in the stomach, and, as it is small, the bloating does not show. But in a short time the intestines become involved; the animal bloats; the pains become more violent; the body is covered with perspiration; the breathing becomes difficult and the animal seems about to suffocate in consequence of the stomach and intestines crowding upon the lungs

TREATMENT.—Give from one to two ounces of sulphuric ether, one ounce of laudanum and one drachm of essence of peppermint in about twelve ounces of water. This dose can be repeated in half an hour and again in one hour from the second dose, if necessary. At the same time copious injections of warm water should be given per rectum. As soon as the animal becomes manageable, from five to eight drachms of aloes, one drachm of calomel and one drachm of gum camphor should be given, either in a ball or a drench. It is not best to push medicines too far. In a prolonged case of colic, where inflammation

is feared, a mustard plaster on the abdomen, as recommended in enteritis, will ward it off.

Spasmodic Colic.

This is a spasmodic contraction of the intestines and is due to change of diet, change of temperature, eating frozen roots, vegetables, etc.

SYMPTOMS.—The attack comes on suddenly; the animal paws, looks at its sides, jumps up in the air and throws itself violently upon the ground, rolls upon its back and tries to balance itself there. In a case of purely spasmodic colic there is very little, if any, visible bloating, but it is often combined with flatulent colic, then there is danger of rupture of the stomach from its great distention with gas and the violent plunging together.

TREATMENT.—If there is no bloating, from one to two ounces of laudanum in half a pint of water will generally give relief. If there is bloating give the drench recommended for flatulent colic. In either case use the warm water injections freely. There is no danger of overdoing this part of the treatment, and I am satisfied that many cases will yield to hot water injections alone if applied in time. The physic, as used in flatulent colic, should also be given in spasmodic colic. After a case of colic, either flatulent or spasmodic, the patient should be allowed no grain for at least twelve hours and should be fed sparingly for two or three days.

When a dose of medicine has been given, due time should always elapse for it to take effect before another is given. The common habit of pouring down dose after dose, as fast as some new-comer on the ground recommends a new remedy, has killed many a good horse that might have recovered without any medicine if left alone.

Constipation.

See treatment for CHRONIC INDIGESTION.

Enteritis.

Enteritis is inflammation of the inner or mucous lining of the bowels.

CAUSES.—Irritating food causing diarrhœa; catching cold or a prolonged case of colic; and sometimes irritating medicines given in the treatment of colic cause it.

SYMPTOMS.—An ordinary observer will sometimes mistake it for colic, but there is a difference. The pain is continuous, while in colic there will be quiet spells. The horse lies down carefully; the pulse is soft at first, but rapidly and gradually grows faster and harder until it becomes small and wiry and then fails altogether. The breathing is hurried, and there is an anxious look out of the eyes. Toward the last the patient does not lie down but continues to walk until it staggers and falls, struggles a few times and expires.

TREATMENT.—There is little use for the novice to attempt treatment; it is generally fatal. A quart of raw linseed oil and two ounces of laudanum should be given at once. Mix a pound of the best ground mustard with warm water and rub it well into the abdomen, then put a sheet of newspaper over it and put on a blanket to keep it there. Use warm water injections freely. In an hour after giving the oil, if there is pain, begin to give one ounce of laudanum every hour until four more doses have been given. Repeat the oil in two hours without the laudanum. Death or recovery will take place in from six to twenty-four hours.

Peritonitis.

Peritonitis is inflammation of the peritoneum—the membrane that lines the abdominal cavity and forms the outer covering of the intestines.

CAUSES.—Injuries to the abdomen, as kicks, blows and punctures. It sometimes follows castration.

SYMPTOMS.—The pulse is quick and hard, and soon grows wiry. The horse flinches if you press the abdomen, and he lies down carefully, but soon gets up again The animal is disinclined to walk about.

TREATMENT.—The same as in enteritis. If the animal begins to recover give one drachm of iodide of potassium twice a day for a week. If there is a wound, dress it twice a day with sulphate of zinc two ounces and water one quart.

Diarrhœa.

The passages from the bowels are in a semi-fluid state.

CAUSES.—A debilitated condition of the digestive organs often brought on by high feeding on rich food. Sometimes it is due to some irritating substance eaten by the animal, as frozen vegetables or roots, impure water, etc.

SYMPTOMS.—Passing of the feces in a thin and watery state and in large quantities.

TREATMENT.—In mild cases it may only be necessary to put the animal on light feed of a dry nature; but it is generally necessary to cleanse the bowels by giving a physic. Give from a pint to a quart of raw oil and one to two ounces of laudanum at one dose. After the oil operates, there is nothing better to check the action of the bowels than gruel made of wheat flour and water well boiled, but not burned. From a pint to a quart should be given every six hours till the diarrhœa begins to check. If there is much pain an ounce or two of laudanum may be added. Keep the patient as quiet as possible.

Dysentery.

This may result from a prolonged case of diarrhœa, or from eating some irritating substance.

The discharges are mucous and stringy and tinged with blood; they are frequent and are accompanied with great straining. There are often griping pains.

TREATMENT.—Give the same treatment as in diarrhœa, and also give one half ounce of powdered charcoal and one ounce of hyposulphite of soda in the gruel three times a day.

Megrims—Epilepsy.

This, in the mild form, is known as Megrims, Stomach Staggers or Blind Staggers; when it is severe it is sometimes called Epilepsy.

CAUSES.—Undue pressure of some part of the harness, and sometimes severe constipation, or even intestinal worms will cause it.

SYMPTOMS.—The horse often becomes sluggish, then after a time begins to stagger or plunge and falls to the ground.

TREATMENT.—Remove all harness that might cause pressure, and wet the top of the head with cold water. If due to constipation or worms, treat as prescribed for those diseases elsewhere in this work.

Bots.

These are the larvæ of the gad fly, Œstrus Equi. They are a great bugbear of the quack. Every case of colic or bowel trouble which does not yield to his treatment being attributed to bots. There is no doubt that they irritate the stomach and interfere with digestion when in large numbers. They often collect in such numbers around the piloric orifice (outlet of the stomach) as to almost obstruct that passage.

TREATMENT.—There are no known means by which they can be dislodged. A good dose of Barbadoes aloes might prove beneficial. When the aloes begin to operate an ounce of chloroform in half pint of water might be given.

Worms.

Those most commonly infesting the horse are the pin-worms or *Ascarides*. They are a small, round worm, pointed at both ends and from one to two inches long. They infest the large intestines and rectum.

The next variety most common is the large round, or lumbricoid worm; the male may grow to twelve and the female to fifteen inches in length. They are mostly found in the intestines.

SYMPTOMS.—There is generally a whitish-yellow deposit around the anus and the worms are occasionally seen in the manure.

TREATMENT.—A drachm of sulphate of iron given twice a day for a week then followed by a purgative is generally effective. A pint of raw oil and one ounce of turpentine given on an empty stomach will often dislodge them. Wood ashes mixed equally with salt and given daily will often answer the purpose. In treating for pin-worms the rectum should be injected twice a week with turpentine one part, and oil four parts.

Wormy Corn or Cornstalk Disease.

This is a peculiar disease which sometimes affects horses in Kansas and other corn-growing states. The cause is not thoroughly understood. In my own practice I have found it only where horses were allowed to feed upon worm-eaten and mouldy corn.

SYMPTOMS.—The premonitory symptoms are not always well marked. Sometimes the animal will appear dull and listless for several hours prior to becoming delirious; while in other cases the first symptoms noticed will be those of delirium. The animal will plunge about in a reckless manner, running against fences, walls, or whatever may be in the way. In some in-

stances the animal falls and dies suddenly; but it generally becomes unable to rise and lies upon the ground struggling for several hours before it expires.

TREATMENT.—After the animal becomes unmanageable it is not only dangerous but useless to attempt treatment, as disintegration of the brain tissue has begun and a cure is impossible. If noticed while yet under control a large dose of aloes—from eight to twelve drachms—should be given at once. A dose composed of half an ounce of chloral hydrate and two drachms of bromide of potassium should be given, dissolved in water, every hour until four doses have been given, unless the patient becomes quiet before. If the disease can be held in check until the physic operates there is a prospect of recovery. Plenty of cool water should be kept within reach at all times.

Final Hints.

In all such diseases as colic, indigestion, etc., where the digestive organs have been overtaxed, all grain should be withheld for from twelve to twenty-four hours, and then it should be fed sparingly for a few days. A fair allowance of good hay can be given, and in all diseases except diarrhœa and dysentery, pure, cool (not ice) water should be kept where the animal can get it at will, and be changed often to keep it fresh and clean.

DISEASES OF THE NERVOUS SYSTEM.

Inflammation of the Brain.

This is not a very common disease among horses in the "Great West," although it does occur occasionally.

CAUSES.—It may come from keeping in too high condition; from concussion produced by a fall, or by a blow about the head, or it may follow some other disease.

SYMPTOMS.—The attack is generally preceded by dullness; and if the horse is in the stable he will often rest his head on the manger; the pulse will be full, but the beat will be slower than usual; the breathing will be loud, resembling a snore. As it goes on the animal becomes excited and plunges about, reels, and sometimes falls. It will walk blindly against a wall and then stand and push with its head until the fit passes off. The pulse grows weak and more rapid and the convulsions more frequent and frenzied as the disease progresses, and the pupil of the eye becomes dilated.

TREATMENT.—If the animal is in good condition take four to six quarts of blood from the jugular vein; and keep cloths wet with cold water on the head. As soon as the animal becomes manageable give from six to ten drachms of aloes and a half ounce each of chloral hydrate and bromide of potassium; repeat the last two every four hours until the patient is quiet, then three times a day for a few days. When the aloes operate, if there is much fetor to the discharges, give one ounce of hyposulphite of soda three times a day. Give cold water freely and feed moderately on soft feed.

Cerebro-Spinal Meningitis.

This disease is not very common in this country, but may occur under any conditions—either in the stable or in the field. It is probably due to some parasitic vegetation which is taken into the stomach with the food. It is neither contagious nor infectious, but a number of animals may take it from the same cause, thus giving the idea of contagion.

Symptoms.—There is loss of appetite, tremors, spasms, twitching of the muscles, and sometimes after reeling about for a while the animal goes down paralyzed, especially in the hind parts. Sometimes the muscles of the throat are paralyzed and the animal cannot swallow. The pupil of the eye is generally dilated and the horse may become unconscious.

Treatment.—If there is complete paralysis, or the animal is unconscious, treatment is almost useless; and it is difficult for the novice to treat in any case. Place wet cloths, or ice packs, over the brain and along the spine to relieve the congestion. If the animal can swallow give one ounce of aloes, then give four-drachm doses of bromide of potassium three times a day. Some practitioners are in favor of putting the patient in slings at once, and, although this is best with some horses, there are others so nervous they will not bear it.

Sunstroke.

This occurs occasionally when in a low-lying field surrounded by timber, shutting off all breeze, and under a broiling-hot sun a horse is pushed beyond its powers of endurance.

Symptoms.—The horse becomes slow and dumpish; pays little heed to the driver; staggers about; the sweat suddenly dries up; the breathing becomes labored, and he finally drops down and becomes unconscious.

TREATMENT.—If noticed before he goes down, stop in a shady place where there is a current of cool air; give a drink of cool water and let him rest an hour or two. If the horse falls apply cold water or ice to the head and along the spine, but cover the balance of the body up warm and get the perspiration started. If he can swallow give two ounces of nitre and repeat it in an hour. If he begins to revive give one ounce of aloes, then give two to four drachms of bromide of potassium three times a day for several days.

Shocked by Lightning.

I do not remember of ever having seen this subject mentioned in any work on veterinary science. The only literature I ever saw touching the subject was a short account of the treatment of the stallion, Pancoast, by Professor Liautard of the American Veterinary College of New York. Although lightning generally kills outright, yet it sometimes happens that the shock is light and the animal may recover, as I have had occasion to know from experience. As the shock is often received when no one is with the animal to see it, you have only the peculiar symptoms, exhibited soon after a storm, upon which to base your diagnosis.

SYMPTOMS.—The animal will generally be found lying down or plunging about in the attempt to get upon its feet, although I saw one case of a mare that received a shock sometime in the night and did not become unable to walk until noon the next day. At first there will be tremors and sharp twitching of the muscles; the eyes will have a dazed appearance; the animal will plunge about and try to get upon its feet; if it succeeds it will walk with a staggering gait, unable to control its movements. After a few hours the twitchings cease and paralysis, either partial or complete, supervenes.

TREATMENT.—A moderate dose of Barbadoes aloes should be given at once to prevent constipation. If there is twitching of the muscles give two to four drachms each of chloral hydrate and bromide of potassium every four hours till the twitchings cease, then change and give one drachm of powdered nux vomica twice a day. If no improvement is noticed after three days increase the dose of nux vomica to one and one-half drachms. Make a liniment of equal parts of raw oil, turpentine and ammonia and rub in well all along the spine twice a day. Feed upon soft food that is easily digested; give plenty of water to drink and keep well bedded to prevent sores, and turn from side to side several times a day.

Tetanus or Lockjaw.

Tetanus has heretofore been divided into two kinds; viz.: *traumatic* when the result of a wound, and *idiopathic* when occuring without a prior disease or injury; but science has proven beyond a doubt that the disease is of microbic origin, the disease germ entering the animal organism through a wound or an abraded surface. Taking this view of the disease it is the writer's opinion that there is but one form of the disease, the traumatic, and, although no wound or injury may be found, it is there nevertheless. A mere scratch in the skin or a small abrasion inside of the mouth is sufficient to afford entrance to the germ. Wounds of the feet are more apt to be followed by tetanus than any other, due to their being in direct contact with the earth, the home of the germ which produces the disease.

SYMPTOMS.—At first the animal will appear stiff, both in limbs and body, and the head will be stretched forward. Jerk his head up suddenly and you will see the haw or membrane at the corner of the eye thrown out till it covers the sight. The jaws may not be much affected at first and the animal continues

to eat; but as the disease progresses the jaws become more set until the animal cannot even drink water.

TREATMENT.—Treatment is not generally successful except in the hands of an expert. If attempted it must be prompt and energetic. If the jaws are thoroughly set there is little encouragement, and yet the writer saved one case in which the jaws were so tightly closed that liquid would not run back in the mouth when the animal was lying down and the nose turned up. First find the wound if possible; cleanse it with warm water, then saturate a piece of cotton with either fluid extract of belladonna or lobelia and bind it on the wound. Now give from one to two ounces of Barbadoes aloes. If the jaws are too close to give in a ball place it back on the teeth with a paddle. Mix one ounce of turpentine in eight ounces of raw linseed oil and give as a drench or with a syringe. Give the following dose at once and continue three times a day thereafter: Chloral hydrate and bromide of potassium, of each four drachms; iodide of potassium, forty grains; water, three ounces; mix. When the first dose of each medicine has been given, remove the bandage from the wound and saturate a piece of cotton with turpentine and bind on instead of the other one. In about two hours remove this and then dress the wound twice a day with oil and turpentine mixed in equal parts until pus begins to form. If the turpentine irritates the patient, take the cotton off and saturate it with belladona or lobelia and bind it on again. Keep the animal in a dark, cool place where there is no noise and allow no one but the attendant to go near. Keep a pail of water where it can drink at will. Give gruel or soft food of any kind that it will try to eat.

Paralysis.

Paralysis is called hemiplegia when one side is affected, and

paraplegia when only the hind parts are affected; or there may be local paralysis, as of the lips, ears, or of the tail.

SYMPTOMS.—Loss of power in the parts affected; if only partial and the animal can yet walk, there will be unsteadiness of the limbs and weaving of the hind parts, or if of one side the animal will circle to the affected side. If it lies down there will be difficulty in rising, and as it increases the animal will be unable to rise. Paralysis of the lips, ears, or other local parts will be recognized by the relaxed and pendulous condition of the part.

TREATMENT.—If the case is of long standing treatment is not generally satisfactory. The bowels should be kept in good condition by giving soft food, and the animal (if grown) should have one drachm of nux vomica twice a day for a week, then the dose should be gradually increased a few grains each day until slight twitchings of the muscles are seen, but this should only be attempted by a competent veterinarian. The spine should be rubbed twice a day till sore with the ammoniacal liniment. In local paralysis the liniment should be applied over the nerve which controls the part affected

Inco-ordination of Movement.

This is a species of paralysis which affects, usually, all the muscles of locomotion in a similar manner. The cerebellum (little brain) or small division at the base of the brain is the seat of the disease. It is generally due to some injury to the top of the head, as a blow, or to falling backwards and striking the head. It may also result from undue pressure upon the part, as from a tumor growing there.

SYMPTOMS.—The most prominent is inability to control the movements and walking with an unsteady, tottering gait. The hesitation and uncertainty with which the horse lifts and

replaces its feet in walking are often mistaken for stiffness. The appetite is generally good and the animal may be in good flesh.

TREATMENT.—Treatment is the same as in paralysis except that the liniment only need be applied on the top of the head.

Chorea.

Chorea is a disease of the nervous system characterized by involuntary twitchings of the muscles. There are several forms of the disease of which a short description of each will be given.

Stringhalt. This is the most common form and is easily recognized by every horseman by the sudden jerking-up of one hind leg when first starting out; sometimes both hind legs are affected There are some cases in which it is not noticeable when the animal goes forward, but if you try to back him or turn him quickly he will jerk his feet. And in some instances if you try to back him he cannot move, but his tail will be elevated and his muscles will become rigid; hence it is always well to try a horse thoroughly before purchasing him.

Immobility. In this form of the disease the horse may appear all right while in the stable or moving about the yard and he may travel several miles upon the road all right, when suddenly and without any apparent cause he begins to go lame and in a short time goes down unable to proceed. After a few hours' rest, however, he generally gets up ready to continue his journey until another attack comes on. This form of the disease, fortunately, is very rare.

Shivering. This is of more frequent occurrence than the last form. A horse with this form is called a shiverer. He may be standing quiet and the attendant strikes him or even speaks sharply and he will exhibit an uncontrollable shivering and twitching of the muscles, which lasts until the excitement

passes off. I have seen another form closely allied to this last, but with symptoms very similar to an aggravated case of St. Vitus' dance in the human family.

TREATMENT.—Although it is known to be due to a diseased condition of some part of the nervous system yet it is difficult to determine just what nerves are affected; hence treatment has not generally been successful. There is no known treatment which a novice can apply with success. The disease is hereditary beyond a doubt and animals thus affected should never be used for breeding purposes.

DISEASES OF THE CIRCULATORY SYSTEM.

The Heart.

The heart is the great fountain-head of the circulatory system, and, in connection with its coverings, is subject to numerous diseases—generally sequelæ of other diseases; but, as the symptoms are generally so obscure as to baffle the skill of the experienced physician, and as treatment is seldom more than palliative in the end, it is useless to occupy space here to give more than a few general symptoms: The horse will generally be very dull and not disposed to move about much; slight exertion will cause the heart to beat tumultously, often so hard as to visibly shake the shoulder; the blood in the jugular vein may often be seen regurgitating or flowing backward toward the head at each beat of the heart; the pulse will be weak and sluggish, notwithstanding the heart is beating violently.

TREATMENT.—When these symptoms become distressing place the animal in a well-ventilated stall, or out of doors if in warm weather; give stimulants, as spirits of nitre or whisky, and let him rest a few days.

Inflammation of a Vein.

Inflammation may occur in any vein, but it is oftenest seen in the jugular vein on the side of the neck. It is the result of some injury or of a bad job of bleeding or from improper care afterward and catching cold in the wound.

SYMPTOMS.—The part becomes swollen and hot, and soon grows hard and painful. If it is the jugular vein he will hold his head out and appear as if stiff in the neck.

TREATMENT.—Cover the swollen part with cloths wrung out of hot water and keep it hot and steaming for several hours by pouring hot water over it; rub the part gently with the hand and aim to get the blood started. If an abscess forms open it and syringe it out with two teaspoonfuls of carbolic acid in one pint of water. If the part remains hard apply a cantharidine blister. If the vein becomes obliterated the horse cannot feed well with his head down to the ground but should always be fed from a manger afterward.

Rheumatism.

A constitutional disease supposed to be due to an excess of lactic or some other acid in the blood. It is most prevalent during wet or changeable weather; it is often caused by exposure to cold; some animals seem predisposed to it and an attack will come on apparently without any exciting cause.

SYMPTOMS.—The animal is suddenly attacked with lameness either with or without swelling. Sometimes the lameness will shift from one leg to another in twenty-four hours. The affected part is very tender on pressure; the pulse is hard and rapid and the temperature is elevated. Rheumatic patients generally give forth a sharp, clicking sound from the joints when first starting to walk after standing a few minutes.

TREATMENT.—Bathe the affected joint with hot salt-water several times a day, and after wiping dry each time rub on a little of the following: Sweet oil, ammonia, turpentine, oil of origanum, spirits of camphor and fluid extract of belladona, of each, two ounces. Give internally a dose of aloes sufficient to open the bowels, then give the following dose three times a day:

Bicarbonate of potash, two to four drachms; powdered colchicum seed, one-half to one drachm; mix. Vary the amount of the dose to suit the size of the horse. Keep the animal loose in a roomy, warm, but well-ventilated box stall. Feed on soft food of a laxative character.

Erysipelas.

Erysipelas is a febrile disease in which the skin, and often the tissues underlying it, become swollen, hot and painful. It is of two forms: The simple or superficial form, rarely seen in the horse, and the phlegmonous or deep form. It is due to some poisonous germ which gets into the blood, often through a wound.

SYMPTOMS.—In the simple form there will be swelling and the formation of small blisters on the skin. In the phlegmonous form there may be a wound that has not been doing well for a day or two when suddenly it begins to swell and becomes hot; it is painful to the touch and the sore gives forth a dark, watery discharge instead of pus, and there is a smell as of burnt leather; there is a crackling sound as you rub your hand over the skin, owing to the air underneath. The temperature will be elevated; the pulse will be quick and hard; the horse will show signs of great pain and have an anxious expression about the eyes.

TREATMENT.—In the simple form give a teaspoonful of nitrate of potash in feed three times a day, and keep the swelling wet with the following: Sugar of lead, two ounces; sulphate of zinc, one ounce; water, one quart. In the phlegmonous form an ounce of aloes should be given at the start, and in addition to the potash, stimulants, as nitre or whisky, should be given. This form is generally fatal. It should be handled with care, as it is contagious to both man and beast.

DISEASES OF THE URINARY ORGANS.

Inflammation of the Kidneys.

This disease very rarely occurs in the horse, although quacks frequently claim its presence; but that is more to cover up ignorance than from any knowledge of the disease. In order to prove their diagnosis correct they often pinch the animal on the loins to make him flinch, which most horses will do at any time.

SYMPTOMS.—The symptoms somewhat resemble those of colic, except there is fever. There will be thirst, arching of the back, stiffness, and tenderness across the loins; violent straining to urinate, but only passing a few drops and that highly colored, and may be bloody.

TREATMENT.—A quart of raw linseed oil and two ounces of laudanum should be given at once, and if the pain continues the laudanum may be repeated in two hours in half a pint of oil. A mustard plaster should be put over the loins at once, and injections of very warm water should be given freely in the rectum once every hour till the pain is relieved. When the animal begins to improve give soft food and add a teaspoonful of bicarbonate of soda to the feed three times a day.

Inflammation of the Bladder.

This seldom occurs except in a mare where the bladder has been injured in delivering a large foal.

SYMPTOMS.—The animal walks with a straddling gait and the urine is passed every few minutes but only in small quantities.

TREATMENT.—The same as in inflammation of the kidneys, except the mustard plaster should be omitted and the warm water should be injected into the vagina as well as the rectum. The animal should be kept as quiet as possible.

Bloody Urine.

This is frequently the result of some injury; it may be from over exertion. It sometimes comes from some abnormal growth in the kidneys, or there may be a calculus (stone) in the bladder. In either of the latter it will require special treatment by a veterinarian.

TREATMENT.—In ordinary cases a dose of from one-half to one drachm of sugar of lead given three times a day, for a few days, will generally check it. If the blood continues, or returns again after having been checked, it will be well to seek the services of a competent veterinarian.

Azoturia.

Azoturia, so called from *Azote*, meaning nitrogen, is supposed to be due to an excess of nitrogen in the blood. A horse, in fair condition and on full feed, is doing regular work every day; finally, he is kept in the stable for a few days, not even turned out for exercise, but has his regular feed; then he is taken out to work and an attack comes on.

SYMPTOMS.—The horse is taken from the stable full of life, and, to all appearances, in the best of condition for work. He may go half a mile or several miles when he gets sluggish, begins to sweat profusely and may appear lame in one or both hind legs. He may swell at the lower and back part of each shoulder and go stiff in front, or the muscles of the loins may be swollen and hard. He may only appear stiff or he may go down unable to rise again. He does not generally lose his appetite,

but will eat and drink as if nothing was wrong, even when he is down and cannot get up.

TREATMENT.—Get the animal in a comfortable position, and, if he cannot rise, give him a good bed of straw but do not sling him. Give a full dose of aloes at once and draw off the urine with a catheter and you will find it the color of strong coffee. Wring cloths from hot water and place across his loins, or, if the weather is cold, use bags of dry salt made hot, instead of the cloths. Give no grain and very little hay until the purgative operates, but give all the cool water he will drink, and in each pailful put a tablespoonful of hypo-sulphite of soda. The horse should be changed from side to side occasionally and the urine should be drawn away every four or five hours. After the bowels have moved he should have a small quantity of oats and bran mash and a teaspoonful of bicarbonate of soda three times a day. When he begins to get the use of his limbs help him to get on his feet and let him out in a yard for exercise. To guard against this disease, a horse should never be allowed to stand in the stable on full feed, but should be turned out for exercise when not at work.

Diabetes.

This disease is probably due to some impurity in the food, as musty hay or grain; it is not the same in the horse as in the human being, there being no sugar in the urine.

SYMPTOMS.—The symptom most likely to attract attention is the frequent voiding, in large quantities, of pale, thin urine. If the animal stands in the stable the stall will be kept constantly wet. There will also be great thirst; and, although the appetite may be fair, the animal will be dull; the hair will be rough and the hide will be tight.

TREATMENT.—As the true cause is generally some derangement of the digestive organs, we should begin the treatment there. Mix together equal parts of gentian, bicarbonate of soda and powdered charcoal and give half a tablespoonful three times a day in some easily-digested, laxative food. To check the flow of urine give the following dose twice a day: Iodine crystals, forty grains; iodide of potassium, twenty grains; water, one pint; mix, and give as a drench. As this is best not taken into the stomach with the food, one dose should be given about the middle of the forenoon and the other in the middle of the afternoon, half way between the feeds of grain. Two or three days of this will generally be sufficient, but it may be necessary to continue longer. Give plenty of drinking water often and in small quantities.

Dribbling of Urine.

This is due to a relaxing of the muscles that close the neck of the bladder. It is frequently seen in brood mares after difficult parturition. In such cases it is the result of severe and prolonged pressure on the parts in delivering a large foal. As each case will require special treatment according to the nature of the case, which can only be determined by an examination, the best plan will be to consult a competent veterinarian.

DISEASES OF THE GENERATIVE ORGANS.

Inflammation of the Testicles.

This sometimes happens in the stallion and is generally due to some injury, as a kick from a mare while in the act of service.

TREATMENT.—Give a dose of aloes sufficient to open the bowels, and give half-ounce doses of nitrate of potash three or four times a day. Suspend the testicles by placing a bandage around and under the hind quarters; keep cloths wet with hot water inside of the bandage around the testicles. If there is much pain give an ounce or two of laudanum internally and saturate a piece of cotton with fluid extract of lobelia and wrap it around the testicles. Moderate exercise will be beneficial if the testicles are supported.

Hydrocele.

This is the filling of the scrotum with fluid and is generally the result of prolonged or oft-repeated attacks of inflammation.

TREATMENT.—Support the testicles with a truss or suspensory and give internally one or two drachms of iodide of potassium. If there is no improvement it may be necessary to puncture the scrotum which will require the skill of a veterinarian.

Phymosis—Paraphymosis.

These are both swollen conditions of the penis. The first is when the penis remains within the sheath, and the second is

when it is protruding and cannot be drawn back on account of the swelling; both are due to the same causes, viz.: injuries to the penis or adjacent parts. In the stallion it may be due to kicks during the act of service. It sometimes results from castration in colts.

TREATMENT.—Bathe the parts freely with warm water and if the penis protrudes support it with a bandage. After the soreness has been somewhat removed by bathing, moderate exercise should be given In very severe cases give nitrate of potash in two to four drachm doses three times a day.

Gonorrhœa.

This is an irritation of the membrane covering the penis and lining the sheath. In stallions it generally comes from serving a mare that has an acrid discharge from the vagina, probably from not cleaning properly after foaling. The irritation may be communicated to mares if the horse is allowed to serve while affected. A somewhat similar condition is seen in geldings as the result of foul sheath.

SYMPTOMS.—Small sores will be noticed on the penis from which a slight discharge issues. In mares there will be a discharge from the vagina, and sores will form where it runs down on the outside.

TREATMENT.—Lay the stallion off from service and wash the penis with cool water, then apply a little of the following three or four times a day with a soft sponge: Sugar of lead, one ounce; sulphate of zinc, six drachms; carbolic acid, two drachms; rain water, one quart; mix.

Do not inject it in the urethra, as the disease rarely extends beyond the orifice, and injections are liable to irritate the deli-

cate membrane. Severe cases may have a dose of nitrate of potash three times a day.

In mares syringe out the vagina with tepid water and inject the lotion. It is not generally serious and yields readily to treatment in a few days.

DISEASES PECULIAR TO THE MARE.

Inflammation of the Womb.

This occurs in a day or two after parturition and is the result of injury or from lying on the damp ground soon after foaling and catching cold.

SYMPTOMS.—Arching the back and straining as in foaling; there will be a dark, watery discharge from the vagina; also, a loss of appetite, rapid pulse, high fever, and an anxious expression about the eyes. The mare will look back and show symptoms similar to those of colic.

TREATMENT.—Give from one to two pints of raw oil and one or two ounces of laudanum; and give two drachms of nitrate of potash and one drachm of sulphate of cinchonida every two hours until four doses have been given, then give every four hours till recovery. Wash the uterus out with warm water, then inject a pint of water in which has been dissolved ten grains of corrosive sublimate. This should be done two or three times a day. Keep the mare in a comfortably warm and dry box stall. Give all the water she wants to drink.

Inflammation of the Udder.

This may occur in mares that are great milkers if the foal be not allowed to draw the milk away regularly; it may also come from catching cold by lying on the wet ground.

TREATMENT.—Bathe the udder freely with warm water, and either draw the milk all away or let the colt do it, then rub in thoroughly some of the following: Sweet oil, two ounces;

fluid extract of lobelia, one ounce; mixed. This should be washed off again in half an hour to let the colt suck, as it is not likely to do so if the medicine is there. A few applications during the day will remove the trouble if the milk is drawn away often. Moderate exercise will assist greatly to remove it.

Leucorrhœa.

This is a chronic discharge that comes from the womb. It may result from a part of the placenta remaining in the womb after parturition, decaying and setting up irritation, but it is more often due old age and general debility. A mare will not thrive while in this condition. It can easily be recognized by the frequent discharge from the vagina of a white, glary and curdled fluid; the discharge is generally fetid. If the mare is allowed to stand quiet for an hour or two and then started up quickly she will throw out a large quantity that accumulated while standing. The tail and hind legs are kept in a filthy condition, and the hair all over the body is rough and staring and the eyes often have a sunken, hollow look, giving a run-down appearance to the animal in general.

Treatment.—It will be necessary to have a catheter or a small rubber tube that can be inserted into the neck of the womb through which water and medicine can be forced with a syringe. The womb should be washed out with warm water twice a day, and each time a little of the following should be injected: Sugar of lead, one ounce; sulphate of zinc, six drachms; carbolic acid, two drachms; mix. A tablespoonful of the following should be given in bran or oats three times a day: Nitrate of potash, gentian and sulphate of iron, of each, six ounces; mixed. The mare should be fed liberally and turned out in a yard every day for exercise, but should not be worked until she has had time to recruit her strength.

Rupture of the Perineum.

This is a rupture of the tissues that separate the vagina from the rectum. It generally is the result of accident in parturition, but it may happen in the act of service. Very few cases can be treated successfully even by the experienced; hence it is useless for the novice to attempt it. Owners of such mares frequently become victims of "medicine sharks" who go about the country performing miracles and gulling the people. "A hint to the wise is sufficient."

DISEASES OF THE EYE.

Simple Ophthalmia.

The eye may suddenly appear weak and unable to bear the light, as a result of catching cold; the lids are kept closed and the tears run down over the cheek. It may also be caused by a blow on or near the eye, even though it did not touch the eyeball. It is not generally serious.

TREATMENT.—Bathe the eye twice a day with water as hot as can be borne with the hand, and protect it from the light for a few days until the inflammation is relieved and it is likely to be all right. If the eye appears to have a film over it touch it twice a day with a little of the following: Nitrate of silver, four grains; distilled water, one ounce; mix.

Puncture of the Eyeball.

Puncture of the eyeball sometimes happens by accident while the horse is grazing in the dark among weeds or brush. And it frequently happens that a gash is cut across the cornea on barbed wire or some other sharp object. If the puncture is small, and if it only pierces the anterior chamber of the eye, allowing only the aqueous humor to escape, the puncture will close and the humor will be reproduced; but if the puncture reaches into the posterior portion of the eye, allowing the vitreous humor to escape, or if part of the cornea should be torn away, the eyesight will be destroyed. But in either puncture or gashing of the cornea, even if the sight is restored, there will always remain a small scar at the point of injury.

TREATMENT.—Examine the wound carefully and if any part of the foreign body remains in the wound it must be removed. The eye should be bathed for half an hour twice a day with cold water; a piece of old muslin is better to use in bathing than a sponge After bathing each time apply around and in the eye a little of the following: Nitrate of potash and sulphate of zinc, of each, forty grains; fluid extract of belladona, four drachms; rain water, one pint; mix. The animal should be kept in a moderately-dark stable and fed on light diet. If a spongy growth begins to protrude from the wound a little dry calomel may be blown into it. If the eyeball remains white after the wound is entirely healed apply twice a day with a camel's-hair pencil, or with the point of a small feather, a little of the following: Nitrate of silver, four grains; distilled water, one ounce; mix.

Specific Ophthalmia.

This disease is frequently known among horsemen as "moon eyes." It is a constitutional affection which attacks the inner structures of the eye; it is due to hereditary influence, and although the first attack may have been caused by some local injury or some other known cause, yet that is no evidence that the predisposition to the disease was not lurking in the system and the attack would have come on at some time either with or without an apparent exciting cause.

SYMPTOMS.—The first attack may be very slight; the eye may have appeared only a little weak with a slight watery discharge for a few days and then got all right again. Another attack may come in a month, or in six months, and it will be a little worse and last a little longer. After several attacks the eye will begin to look milky while sore, but if you stand close to the horse just back of the eye and look forward through it you will see that the aqueous humor is clear and the cloudy part is back

of it. Sometimes well-advanced cases will present a yellowish deposit in the lower part of the eye.

TREATMENT.—The disease is incurable and will sooner or later terminate in blindness—sometimes in cataract and sometimes in amaurosis. However, treatment can be palliative, and if begun in time may prolong the eyesight several years. Very heavy feeding especially on corn, should be avoided at all times with such an animal. When the attack comes on give a dose of aloes sufficient to open the bowels; give forty grains of quinine and four drachms of nitrate of potash in feed or on the tongue three times a day for a week. Bathe the eyes for half an hour morning and night with very warm water, then apply the following: Nitrate of potash and sulphate of zinc, of each, forty grains; rain water, one pint; mix.

Bleeding Fungus.

Sometimes as the result of an injury, in connection with some constitutional tendency, a spongy growth will appear in the eye and continue to grow until it protrudes in an unsightly, bleeding mass over the cheek; it appears to be of a somewhat cancerous nature and if only partly removed will grow all the faster. It may become so extensive as to produce caries of the bone.

TREATMENT.—The only mode of treatment the writer ever found to be effectual is to remove the entire mass of diseased tissue, including the eyeball if diseased. If there is much bleeding saturate a bunch of cotton with tincture muriate of iron and press it into the cavity, leaving it there until the next day when it should be removed and another piece saturated with a solution of chloride of zinc, one drachm to the ounce of water, and pressed into the cavity. This should be repeated next day, and then it should be cleansed once a day thereafter with car-

bolized water, and carbolized vaseline applied and the orifice again filled with cotton to keep out the dirt.

Torn Eyelids.

Sometimes, by accident, the eyelids become torn. Never cut the loose parts away if they can possibly be saved; it leaves the eye without protection. Cleanse them and bring the edges together with a few stitches and they will soon unite again.

DISEASES OF THE SKIN.

Eczema.

There is a severe itching of the skin, generally of the shoulders or of the hind quarters; numerous small blisters are formed on the skin and are broken open by the frantic rubbing of the animal, especially on going into the stable after being warmed up at work.

TREATMENT.—Give the horse internally a heaping tablespoonful of the following twice a day: Epsom salt, sulphur and cream of tartar, of each equal parts, mixed. Feed on oats and bran, but no corn. Turn out on grass if convenient. Bathe the affected parts twice a day with hypo-sulphite of soda, two ounces; carbolic acid, two drachms; water, one quart; mixed.

Prurigo.

When horses are highly fed on corn or other heating food there is often a severe itchiness of the skin which makes the animal almost frantic at times; he will bite his sides and rub himself against the side of the stall until the skin becomes bare and raw in places. There are no blisters or pimples at first, but just a severe irritation of the minute terminal nerves of the skin due to an over-heated, surfeited condition of the system from high feeding.

TREATMENT.—Change the feed if possible; give no corn; feed oats and bran and give carrots, potatoes, and any other vegetables that he will eat of a cooling nature. Give a heaping tablespoonful of Glauber's salt in the feed twice a day. Wash

the body of the horse all over to remove the dirt from the skin, then sponge him all over with strong vinegar. The application of the vinegar should be repeated every day or two until the irritation ceases.

Urticaria.

This is an irritation of the skin which occurs among colts and young horses. generally in spring or early summer months; but may appear at any season of the year. It has been attributed by some to change of weather and by others to something in the diet; the exact cause, however, is unknown. It comes on very suddenly. An animal all right in the morning may be covered with little nodules at noon. The nodules are broad at the base and rise up from a quarter to a half inch high, resembling a swelling from a bee sting. They may be only on some part of the body or may cover head and neck as well, and sometimes the eyes are closed with the swellings. It is not serious, and often passes off as suddenly as it came on.

TREATMENT.—Bathe the swellings with salt water and give a heaping teaspoonful of nitrate of potash three times a day, or a tablespoonful of Epsom salt twice a day till the skin is all clear again.

Summer Sores.

Small lumps or pimples the size of a pea or larger come on the skin on any part of the body or limbs; these itch, and, by rubbing, a raw sore is produced which increases in size, becomes hard or caked, and a bloody serum oozes out. Because of severe itching the horse continues to rub and bite the sore until a surface several inches in diameter is often involved. These sores are due to a parasite (*Filaria irritans*) which must be destroyed before permanent healing can take place.

TREATMENT.—Shower the part for half an hour with cold water, then sponge it over thoroughly with chloroform until

every part has been saturated, after which apply a coating of the following: Calomel, one ounce; tannic acid, one ounce; vaseline, four ounces; mix. This entire treatment must be repeated faithfully every day until the sore is all healed. The animal must be prevented from biting the sore.

Lice.

Any and all animals are liable to be troubled with lice, and more especially those that are thin in flesh. Where only one or two are to be treated a mixture of one part oil of tar, two parts sulphur and four parts of lard well rubbed in about the head, mane and along the spine once a week for three weeks will effect a cure; but if a large number are to be treated the wash prescribed for mange will be cheaper and more readily applied.

Hen Lice.

Where chickens are allowed to roost or build nests about the stable, horses are apt to become infested with hen lice, and will rub and bite themselves wildly, while nothing can be seen except on the closest inspection. Any of the preparations for horse lice or mange will kill them, but the stable must also be cleansed or they will be as bad as ever in a day or two.

Ringworm.

Ringworm is due to a vegetable parasite (*Trichophyton tonsurans*) which manifests its presence by small, round spots of bald scurfy skin, frequently about the head and face, but may come on any part of the body. It is contagious to man or beast and should not be neglected.

TREATMENT.—Wash off the scabs and apply tincture of iodine once a day for three days. Repeat at the end of a week if necessary.

Warts.

Warts are small, rough, scaly tumors or abnormal growths formed by a thickening of the skin; they may come on any part of the body or limbs, but are often seen in great numbers about the nose and eyelids. If they are very small and numerous, as is often the case about the nose, they can often be removed by a daily application of castor oil with plenty of hand-rubbing. But if they grow singly the best plan is to take a sharp knife and cut them out, including a narrow strip of healthy skin all around the wart to insure getting all the roots. Flat warts may sometimes be removed by touching once a day with nitric acid, but do not let it get on the healthy skin.

Bleeding Warts—Recurrent Tumors.

There is a species of tumor commonly called "bleeding wart" that grows on the lower or less fleshy part of the leg of the horse as the result of some deep-seated injury, frequently from a neglected wire cut where the covering (periosteum) of the bone has been injured. If not taken in its early stages it is very difficult to control, as cutting out, unless every particle is removed, only seems to make it grow more rapidly.

TREATMENT.—Remove the tumor with a knife to the level of the skin, then make enough paste to cover the tumor, as follows: Take chloride of zinc, and just enough water to dissolve it; add enough wheat flour to form a paste; spread this over the surface of the tumor; lay on a piece of cotton to keep it from spreading and apply a bandage around the whole for twenty-four hours, then remove it. Keep the part oiled and in a week or less the dead tissue will drop out, when, if any of the roots remain, the process should be repeated. When it is all out the wound can be healed by a daily application of the following wash: Chloride of zinc, three drachms; rain water, one pint; mix.

Melanotic Tumors.

Melanosis is a disease peculiar to white or gray horses; sometimes, though not often, seen in others. It manifests itself in black, hairless tumors resembling rubber. They may occur on any part of the body, but are oftenest seen about the root of the tail and around the anus. If small they may be dissected out; if large, and deep in the muscles, let them alone.

Mange.

Mange, sometimes called "Texas itch," because many horses coming from Texas were infested with it, is due to a parasite which burrows in the skin. The parasites are of three varieties, viz.: the sarcoptes, dermatocoptis and dermatophagus.

SYMPTOMS.—There will be intense itching of the skin, increasing the more it is rubbed. Small blisters or pimples will form, and, when broken by rubbing, will discharge a gluey substance that dries on the skin. The hair will be rubbed off and the skin thickened.

TREATMENT.—Make a wash of unslacked lime, one pound; sulphur, two pounds; water, two gallons; slake the lime in the water first, then add the sulphur and boil and stir until thoroughly combined. Select a warm day and first wash the animal with warm water and soap; when nearly dry apply the wash with a large swab or mop, rubbing it well into the skin. It should be repeated in a week. It generally takes about three applications to effect a cure. Where a large number of animals are affected, a tank, such as that used for dipping sheep, can be used. The disease is contagious and all harness and blankets used about it should be washed in hot water and soap and then sponged with a five per cent solution of carbolic acid.

Scratches.

Horses that are working in the mud and slush from rain and

snow in cold weather, and are not properly dried, are apt to have the legs about the heels and fetlocks to become rough and sore and crack open; sometimes the legs swell up and become painful.

TREATMENT.—Wash the parts with warm water and castile soap and dry them, then apply three times a day a wash made as follows: Sugar of lead, two ounces; sulphate of zinc, one ounce; carbolic acid, three drachms; water, one quart. Turn the animal out in a dry yard for exercise, and feed on light diet.

Grease Heel.

When a case of scratches has been neglected for a long time the blood becomes impure; the legs swell badly and a greasy, fetid matter oozes out through the pores of the skin and the horse often becomes quite lame.

TREATMENT.—Give the horse a dose of aloes sufficient to physic him, then give a heaping teaspoonful of nitrate of potash in bran mash three times a day. Apply a poultice of linseed meal dusted over with powdered charcoal once a day till the sores have a healthy appearance. If there is any proud flesh touch it with lunar caustic. When the sores are healthy apply the wash prescribed for scratches. The horse should be fed on cooling, laxative diet, and exercised, in a dry yard, enough to take the swelling down. If the case proves obstinate give the following internally: Iodide of potash, two ounces; Fowler's solution of arsenic, eight ounces; water, eight ounces; mix. Dose, two tablespoonfuls in a little water or on the feed twice a day. It is often very tedious to treat.

DISEASES OF THE LYMPHATIC SYSTEM.

Lymphangitis.

This is also sometimes known as weed, Monday morning fever, etc. It occurs oftenest among heavy work horses that are working hard and being fed highly. They are sometimes allowed to stand in the stable idle for a day or two and the full amount of feed given; a larger amount of nutritive material is formed than can be taken up by the absorbents and the result is an attack of the disease.

SYMPTOMS.—After a day or two of complete idleness the horse will be found with one hind leg badly swollen and very tender to pressure, especially along the line of the lymphatics on the inside of the leg. It may occur in both hind legs, and it is possible, in the fore legs. The appetite is generally gone, the pulse very full, and the horse shows signs of suffering.

TREATMENT.—Give a dose of aloes according to the size and strength of the horse; and give half-ounce doses of nitrate of potash three times a day. Bathe the swelled leg with very warm water for half an hour, then rub on a liniment made of tincture of arnica, fluid extract of lobelia and distilled extract of witch hazel, equal parts. As soon as the inflammation passes off the horse should be turned out for exercise.

Anasarca.

This disease is characterized by dropsical swellings of the

limbs and lower part of the body. When it comes under the belly some call it "water farcy;" and it is called "stocking" when in the legs. It is due to a debilitated condition of the system. The walls of the blood vessels become relaxed and allow the thin, watery part of the blood to ooze out and settle in the cellular tissue underneath the skin.

SYMPTOMS.—The legs will be swelled after standing in the stable over night, but it is not so extensive as in lymphangitis, and is not painful; and it will pit upon pressure with the fingers Swellings often form under the belly, sometimes to the thickness of a couple of inches. It passes away with exercise and returns again when the horse stands over night.

TREATMENT.—A purgative is not generally advisable; but the bowels must be regulated by giving soft, digestible food. Give, morning and night, a dose composed of nitrate of potash, two drachms; sulphate of iron, two drachms; nux vomica, one drachm; and feed liberally to build up the strength. Do not blister the swellings nor apply strong liniment; but apply cold water with force, as from a hose, for ten minutes, then rub the parts dry with a cloth and give plenty of rubbing with the hand or with a brush. Give moderate exercise every day.

Swelling of the Sheath.

This is very common and is due to the same cause. Exercise will generally effect a cure.

Horses that have run in the pasture until late in the fall and are then stabled should be fed up gradually and have exercise every day throughout the winter if not at regular work.

WOUNDS AND THEIR TREATMENT.

In this land of barbed wire fences, wounds in horses are of common occurrence. They occur on all parts of the body and limbs. As they generally take place while the animal is running at large in the pasture they are often not discovered until all bleeding has ceased; but if bleeding seriously when found the proper proceedure would be to take the vein or artery up and tie it, or twist it. If that cannot be done, saturate a piece of cotton with tincture muriate of iron and bind on; or, if no iron is at hand, bind on the cotton alone and apply pressure. Bleeding in any part of the body can often be stopped by allowing a stream of cold water to fall two or three feet and strike on top of the loins for a few minutes. The bandage should be left on twenty-four to forty-eight hours to insure against bleeding when it is removed. When there is no bleeding the wound should be cleansed by pouring on warm water, then it should be dressed with one part turpentine and three parts sweet oil to hasten the formation of pus, as the swelling will then go down. It can then be healed by an application twice a day of the following: Sugar of lead, one ounce; sulphate of zinc, six drachms; carbolic acid, two drachms; rain water, one quart. Do not keep it bandaged, but each time after dressing it dust the raw surface over with dry wheat flour. If proud flesh starts, check it with burnt alum. Very few wounds need stitching up. They heal from the bottom better and scar less if left open. After two or three days, when the muscles have become set, all loose parts should be neatly trimmed away. Do not keep a horse with a

sore tied up in a stable, but give him a box stall at night and turn him out in a yard in the day time. Standing makes the wound grow feverish and swell. Wounds from snags, or other sharp-pointed objects, should always be well examined to see that nothing is left in the bottom.

Fistula and Poll Evil.

As these two diseases are of exactly the same nature only differently located, they will be treated under the same heading. When the disease affects the withers it is fistula, or "fistulous withers;" and when situated on the top of the head it is known as poll evil. The disease has always been attributed to a bruise or local injury; but, after an extensive and varied experience in treating it, the writer is of the opinion that there is some parasitic agent connected with it, and he is glad to learn lately that there are others who concur in the same opinion.

Symptoms.—In either location the disease may begin with a stiffness of the part affected without any apparent swelling. The horse may be dumpish and off his feed for a few days and then seem all right for some time before the swelling appears. Finally the parts are swollen, hard at first, but after a time growing soft and filled with pus. It may remain swollen a year before it breaks, or it may break at any time. Sometimes the tumor grows very large.

Treatment.—If taken before the formation of pus, repeated blistering with biniodide of mercury, one part, to lard, six parts, and the administration internally of one to two drachms of iodide of potassium twice a day, may ward it off. But if pus forms, the tumor should be split open on both sides, parallel with the mane When the bleeding has ceased, fill the cavities full of lumps of sulphate of copper; grease the hair below it and let it alone for a week, when the dead tissue can be

removed. This burning-out should be repeated until the sore becomes healthy, when an outlet for pus should be made at the bottom, and the sore dressed once a day with chloride of zinc, two drachms ; water, one pint. The iodide of potassium should also be given the same as when the sore is not open. Many cases require long and skillful treatment and some are incurable.

Calcareous Degeneration.

This is a species of tumor that has small calcareous or limy bodies interspersed through it. These bodies are from the size of a millet seed to that of a hazel nut, and form sores if located where they receive pressure from the harness. The remedy is to dissect the deposits out and then treat as an ordinary wound.

Callouses.

Callouses about the shoulders or other parts, the result of undue pressure, are best treated by splitting the skin and removing the hard tissue with the knife, then healing the wound.

LAMENESS AND DISEASES OF THE FEET.

While some forms of lameness are so prominent as to be plainly visible at a glance, there are others which require the closest scrutiny to locate. Again, there are some who seem to have an innate faculty for discovering the affected part, while there are others who can never become proficient, even with the closest study and observation. There are a few points, however, which, if borne in mind, may serve as a guide, viz.: If a horse is standing, always examine him before he is moved, but do not give an opinion until after you have seen him moved. Move him on the trot, not on the gallop. If he is lame in front he will elevate his head with the lame foot and drop it with the sound one. If he is lame in the shoulder he will drag or swing the lame leg instead of picking it up quickly and placing it down carefully. If lame behind he will elevate the hip on the lame side, but the leg will also fail to come as far forward as the sound one. A horse lame in or below the hock joint rests his foot a little forward of the other; if lame above the hock he will rest it even with or back of the other. Disease of bone grows better as it warms up in traveling; diseased tendon or muscle grows worse. If a horse is already warmed up it is well to let him cool off before examining him.

A few general directions in the treatment of lameness will also save many words hereafter. If a horse is seriously lame, remove his shoes, if shod. As in most cases of injury or sprain

there is inflammation, the first step necessary is to reduce it by the application of either hot or cold water. If a wound is swollen and painful, hot water is generally preferable to cold. But if there is not much pain, cold water gives the best satisfaction; and especially if a joint is the seat of injury, except in case of rheumatism, and then hot water should always be used. The best method of applying the water is to wrap the part to be fomented in several thicknesses of cloth, as an old blanket, and then keep it wet for several hours. Hot water should always be as hot as the hand can bear it. To use it only luke-warm is a waste of time. If cold water can be applied with force, as with a hose, it has a good effect. When neither cloths nor force can be used, salt may be added to the water, or vinegar and salt may be used instead of water and salt. It should be applied hot, but should not be boiled in mixing. Occasionally a case of lameness will subside after the inflammation has been removed and no other treatment be needed; but most cases require additional treatment, either to complete the cure or to prevent a return of the lameness.

As some of the blisters, liniments, etc., will be used in a number of different cases throughout the treatment of lameness, the mode of preparation will not be given each time, but, in order to save space, only the name of the remedy and the manner of application will be given, and the formula, method of preparing and instructions for general use will be found in the article headed, Medicines, and How to Mix Them, near the beginning of this work.

Sweeny.

Sweeny, sometimes called "shoulder slip," is of common occurence in young horses, especially when put to work by the side of an older and stronger horse. It is due to injury of the

muscles which pass down over the outside of the shoulder blade; occasionally other muscles are involved.

SYMPTOMS.—The animal sometimes tries to favor the injured shoulder in pulling; when out of the harness there is a dragging or swinging motion to the leg; when weight is put upon the leg in walking, there is a bulging out of the shoulder joint In the course of a week the muscles of the shoulder will begin to waste away.

TREATMENT.—If there is undue heat about the shoulder, shower the affected part several times a day with cold water until the inflammation subsides; then, if the muscles have not commenced to shrink, apply the following twice a day down the shoulder blade and around the joint: Distilled extract of witch hazel, tincture of arnica and spirits of camphor, equal parts, mixed. If the muscles are shrunken apply the ammoniacal liniment to the same parts twice a day, rubbing it in well until the skin becomes sore, then stop a few days, when the liniment should be repeated. Give complete rest until all lameness ceases, then light driving will not hurt him.

Capped Elbow.

Sometimes it happens that the horse while lying down in the stall will bruise the point of the elbow so severely as to cause a soft, puffy tumor to form. If attended to at once it will generally yield to copious applications of hot or cold water; but if allowed to remain for some time it will be necessary to open it, and the best way is to pass a seaton through it from top to bottom. Some digestive should be used on the seaton, as cantharidine ointment or turpentine and oil. If the tumor becomes hard, it is best to dissect it out, and this will require some skill. In any case it will be necessary to remove the cause to prevent a return of the tumor.

Elbow Joint Lameness.

This form of lameness is not of very frequent occurrence, but is very serious when it does occur. It may result from a fall, but is generally the result of getting the foot fast and twisting the joint. The horse will be very lame, will scarcely use the leg, and backs with great difficulty; the joint will also be swollen and painful.

TREATMENT.—Give complete rest; reduce the inflammation with cold water, then apply the ammoniacal liniment or a blister of cantharides made of one part of powdered cantharides and six parts of lard or vaseline. The horse must be given ample time to recover before going to work, or there is danger of a return of the lameness.

Knee Joint Lameness.

Injury to the knee joint may occur in various ways. As a sprain it may be from stepping in a hole; but bruises and cuts of the knee often happen from falling on rough, frozen or rocky ground, and from striking the knee against some hard object when running.

SYMPTOMS.—If a sprain, there will be heat, swelling and stiffness of the joint; and in walking there will be a shoving motion of the leg as if trying to bend the knee joint as little as possible. Bruises and cuts are apparent and need no other explanation

TREATMENT.—If a sprain, reduce the swelling as much as possible, then apply a blister made of one part biniodide of mercury and six of lard or vaseline. Bruises and cuts should have an application two or three times a day of White Lotion. This not only heals the cuts, but it also removes the soreness from the contused parts. If the cut should happen to be deep enough to open the synovial sac and allow the escape of the "joint water," see OPEN JOINT.

Knee Sprung.

This is not a disease, but only a symptom of some disease, as sore tendons, bruised heels, corns or some other affection, to relieve which the horse stands with his knees bent forward. Examine for the cause and, when ascertained, see treatment under its proper heading.

Splint.

A splint is a bony enlargement located between the large bone (*metacarpal*) of the leg below the knee and one of the small splint bones located on the back part of the large bone. It is generally located on the inside of the leg and is then due to concussion from traveling on hard roads; but it may come on the outside of the leg from an injury, as a blow or a kick. Its seriousness depends upon its location. If it is near the knee joint the lameness is often severe; but if not located near a joint the lameness is generally trifling.

SYMPTOMS.—In walking the animal may not limp much, but will show it plainly in trotting. The lameness is most severe before the enlargement begins to show, but there will be heat in the part and the horse will flinch upon pressure with the fingers. When the enlargement begins to grow it can be easily seen as well as felt.

TREATMENT.—If discovered before the enlargement begins, shower daily with cold water, and if the lameness continues after the inflammation has been reduced, apply the biniodide of mercury blister, repeating in four weeks if the lameness continues. If there is an enlargement accompanied by lameness, the treatment will be the same; but if there is no lameness, only the blister need be applied, and that will do very little good, as the enlargement cannot be reduced much.

Pastern Joint.

This includes both the fetlock joint and the joint immediately below it. Sprain of these joints is not very frequent. It may be known by lameness, heat and swelling of the parts; and the animal will also point the foot to relieve it from the weight of the body.

TREATMENT.—Is just the same as in other joints, viz: Hot or cold water applications, liniments, blisters and complete rest.

Wind Galls.

These are puffy tumors and may come on any part of the limbs where a tendon plays through a sheath. They are an undue enlargement of some part of the sheath which becomes filled with synovial fluid. Some recommend puncturing wind galls and allowing the escape of the fluid; but this is not always advisable; a puncture near a joint might result seriously.

TREATMENT.—Bathing with cold water and pressure by bandages, followed by blister, will be the safest. Old, long-standing cases are incurable with any treatment.

Quarter and Toe Crack.

These two are the same in character, the different names only indicating the part of the foot affected. They are due to a dry and brittle condition of the hoof. They may be only very slight, causing little or no lameness; but sometimes they penetrate to the sensitive part of the foot and cause serious lameness.

TREATMENT.—The crack should be carefully cleaned out with a hoof-knife, cutting away the edge of the wall on each side of the crack, but not wounding the sensitive tissue in the bottom. A cut should then be made at a right angle with and across the top of the crack reaching into the quick, to prevent the crack from extending further up the hoof. A warm, flax-

seed meal poultice should then be kept on the foot, changing it once a day for a week. At the end of a week the poultice can be omitted and a cantharidine blister applied around the coronet; and the crack should be kept filled with an ointment made of pine tar, one part, and tallow, two parts. The horse must be given complete rest and should not be put to work until the new growth is well under headway.

Corns.

Corns are bruises of the sensitive part of the sole of the foot in the angle formed by the junction of the bar and the wall. They are the result of undue pressure from the shoe, sometimes caused by improper shoeing, but just as often caused by leaving the shoe on the foot too long, with a mistaken idea of saving expenses.

SYMPTOMS.—Lameness, especially on hard ground; the horse will point the foot when standing. Take up the foot and tap it with a hammer or try it all around with a pair of pinchers and the horse will show signs of pain when you touch the tender spot. If you remove the shoe and clean out the angles, the bottom of the hoof in the angle is generally tinged with blood.

TREATMENT.—Remove the shoe and dress down the heel; clean out the angles and cut down carefully; if there is pus, cut away enough of the sole to give it free exit. But if it is dry, do not cut to the quick, but only thin it down. Cut away the wall slightly to let the frog down on the ground. If pus has formed, after evacuating it hold the foot up and fill the angle full of muriatic acid or muriate of antimony. Apply a warm linseed-meal poultice every day till the tenderness is removed, then fill the angle with cotton saturated with pine tar to keep out foreign matter; the tar is also beneficial to the foot. After the sole at the seat of the corn has become somewhat hardened the

shoe may be replaced, but the foot should be so dressed as to relieve the corn of all pressure, or it will return again. Horses that are subject to corns will be greatly benefitted by allowing them to go without shoes as much as possible, and even then the heels should be dressed down occasionally to let the frog upon the ground, and the angles should also be cleaned out.

Seedy Toe.

Seedy toe is a dry, brittle condition of the hoof in which it crumbles away in very small particles. It is sometimes called "dry rot." It is due to a faulty secretion of the hoof, the result of other diseases.

TREATMENT.—Endeavor to get the foot in a healthy condition by poulticing, soaking, blistering the coronet and by applications of oil of tar to the wall, etc. It will require some time to replace the diseased part with healthy hoof.

Sprain of the Back Tendons.

Sprain of the back tendons of the leg (*flexors perforatus and perforans*) may occur from hard driving, especially on uneven ground, or it may come from heavy pulling. Allowing the toe of the foot to grow long, thus increasing the leverage, will make sprain of the back tendons more liable to occur.

SYMPTOMS.—There will be heat and swelling, and the horse will show signs of pain if the tendons are pressed with the fingers. There will be lameness when traveling and it will be just the same on soft ground as on hard ground.

TREATMENT.—Have the animal shod with high heels and no toe calks, and apply cold water several times a day until all inflammation is removed. A blister made of equal parts of the biniodide of mercury and cantharidine blisters combined should be applied and repeated again in three or four weeks. Complete

rest should be given the horse, not only while lame, but for several months, to allow the tendons to grow strong before he is put to work again. If blisters fail to relieve the lameness, the firing-iron should be applied; but this requires some experience to perform properly and should only be entrusted to a competent veterinarian.

Sprain of the Suspensory Ligament.

This ligament lies between the flexor tendons and the back part of the bone of the leg from the knee downward. A sprain of the suspensory ligament is more serious than a sprain of the back tendons. Symptoms and treatment are the same as for the back tendons. Firing and long rest will sometimes effect a cure in these cases when everything else has failed

Navicular Disease.

Navicular disease, sometimes called coffin-joint lameness, occurs among horses that are used for hard and fast driving upon the roads. If it is of long standing it is incurable.

SYMPTOMS.—It is not always easily diagnosed by the inexperienced. There will be lameness, sometimes only on starting, then it will disappear; if you hold the foot up and tap with a hammer on or near the frog the horse will flinch; if the disease is of long standing the affected limb will have a neat, clean appearance and the hoof will be smaller than its mate.

TREATMENT.—If the lameness is of only recent occurrence a cure may sometimes be effected. Remove the shoe and apply hot poultices to the foot until the hoof is thoroughly softened, then rasp down the wall, making the toe the lowest, and dress out the sole. Fix a tub or tank with cold water and stand the horse in this five or six hours each day for two or three weeks. After this has been done apply the biniodide of mercury blister

to the coronet often enough to keep it just moderately sore for two months. Shoeing with swelled heels to relieve the foot of frog pressure will sometimes prove beneficial.

Hipped.

Hipped or "down in the hip" is when the point of the hip (*anterior illiac spine*) has become broken off, making that side of the hips have a drooping appearance. It is generally the result of a fall or a blow from running through a stable door and striking against a post. Treatment is not often necessary, unless an ulcer forms and then the only course is to cut down upon the loose bone and remove it. If there is no ulcer the parts may be bathed occasionally with cold water to prevent inflammation.

Sprain of the Hip Joint.

The hip joint, although not so liable to injury as some other parts, occasionally becomes injured from slipping upon icy roads or from stepping upon some rolling object; it is sometimes quite serious and, in cases, incurable.

SYMPTOMS.—It is not always easily diagnosed. In trotting, the step will be rather shorter than natural and the entire leg will be brought forward with a slightly outward swing, as if consisting of one piece. There may be soreness in the joint and signs of pain upon pressure, but this is uncertain, as some horses will flinch when there is no soreness. After it has gone on for some time there will be wasting of the muscles over the joint.

TREATMENT.—There must be complete rest in a roomy box stall; or, if it is in the summer, he may be turned out to pasture, as he will require a long rest to grow sound. The muscles over and around the hip joint should have an application of ammoniacal liniment, well rubbed in, two or three times a day till the skin becomes sore; then a little clean lard should be rubbed on

and left for a few days until the soreness is all gone from the skin, when the liniment should be repeated. The biniodide of mercury blister is used by some instead of the liniment, but I prefer the liniment. If liniment and blisters fail to relieve the lameness, either a deep seaton should be inserted or sub-cutaneous cautery may be employed, but neither of these operations should be undertaken by anyone but a competent veterinarian.

Stifled.

The term "stifled," as applied by common usage, has reference only to the patella or cap on the front part of the stifle joint. The patella slips from its position in front to the outside of the joint. It may happen from slipping in traveling; but it most frequently takes place when the horse is standing in the stable. It is due to weakness of the ligaments which hold the patella in place. It frequently follows some debilitating disease, as strangles, influenza, etc.

Symptoms cannot pass unseen, as the animal walks with great difficulty as long as the dislocation continues. The stifle joint cannot be flexed, the leg extending slightly backward and only brought forward with an outward swing without bending the stifle joint, making progress very slow.

TREATMENT.—First, get the patella into its proper position. Sometimes this can be done by simply drawing the leg forward with one hand and working the patella with the other; but usually it is necessary to place a rope around the ankle and have an assistant draw forward on it while the operator endeavors to get the patella in place. Stand just back of the stifle facing the horse and, with the palm of the hand, push or strike lightly against the patella, and it will go into position with a sharp click and the leg can be brought forward and flexed without

difficulty. A strap can then be fastened by one end to the animal's fetlock and the other to a collar or strap around the shoulders allowing the foot to go back even with the other one, but no farther. Another way to keep it in place is to buckle a strap around the affected limb just above the hock, making it just tight enough to keep the animal from putting his weight on the leg. The ammoniacal liniment should be well rubbed in on the inside and front of the stifle joint, but not on the outside. Apply it every two hours until the skin is well thickened up and tender, then the appliances to hold the leg forward can be removed. As soon as all irritation leaves the skin the liniment can be applied again if necessary.

Sprain of the Stifle Joint.

Sprain of the stifle joint proper may come from slipping and falling, or it may come from pulling in deep, sticky mud.

SYMPTOMS.—The horse stands with the leg flexed and the stifle dropping forward and downward. There will be lameness in both walking and trotting, and the leg moves stiff and stilty, as if too long for its mate.

TREATMENT.—Reduce the inflammation with either hot or cold water, and then apply the ammoniacal liniment three times a day to both inside and outside of the stifle joint. The horse must have complete rest from work until entirely recovered.

Sprain of the Flexor Metatarsi.

This muscle is situated at the outer edge of the front part of the hind leg between the stifle and the hock joint. A severe sprain and even a rupture sometimes takes place from slipping in heavy pulling.

SYMPTOMS.—The lameness is very great and accompanied by the most excruciating pain. The animal cannot bring the leg

forward and in attempting to walk breaks down in the lame leg at every step, the pain causing profuse sweating and trembling of the entire body. When the animal raises the foot from the ground the leg swings backward, causing the skin on the back part of the thigh to be thrown up in loose folds.

TREATMENT.—Endeavor first to allay the pain. Give one or two ounces of laudanum in three times its bulk of water. You cannot drench unless you can do it while the animal is down. Bathe the front part of the thigh with hot water, then apply laudanum, fluid extract of lobelia, camphor or anything else at hand to relieve the pain. After twenty-four to forty-eight hours when the pain has subsided apply a cantharidine blister down the front of the leg from the stifle to the hock, but do not make it too severe. The blister may need to be repeated in two or three weeks. Give the animal complete rest in a box stall; do not tie it up. Mild cases recover in a month or two; very severe cases may take a year or more.

Bone Spavin.

A bone spavin is a bony enlargement on the inner part of the hock joint. There are several things to be taken into consideration before deciding as to the curability of a bone spavin. If the enlargement is low down, not of long standing and only lame at starting and ceasing after becoming warmed up, the prospect to cure it is favorable. But if it is located high up, involving the entire joint, or is of very long standing and the horse old, or if the lameness does not grow less after being warmed up, then there is little prospect of making a cure.

SYMPTOMS.—If the enlargement is of good size it can be plainly seen. In trotting there will be dropping of the hip, and the step on the lame side will be shorter than on the other; if the animal is working let it stand for several hours and then

start off lively; there will be lameness, probably touching the toe first then easing down on the foot and after going a short distance the lameness will almost or entirely disappear. When standing the foot is rested forward of the other, and sometimes with the heel resting against it. There is not much soreness or pressure.

TREATMENT.—If taken in the beginning, sometimes complete rest in the stable with a biniodide of mercury blister applied once in three weeks for several applications will cure it; but few confirmed cases of bone spavin can be cured short of the free use of the firing iron in the hands of an expert. In either the blister or the use of the firing iron the horse should remain in the stable for the first month and then have at least two more months to run idle before putting to work.

Bog Spavin.

A bog spavin, so called because it is soft, is a puffy tumor situated on the hock joint just above and a little to the front of the seat of bone spavin. It is an over-distention of the capsular ligament with synovial fluid generally caused by a sprain. Many horses of the heavy breeds with large beefy hocks are predisposed to it and often it does not seem to hurt them. It does not always cause lameness but when it does it is generally more serious than in bone spavin, as it is more likely to involve the upper part of joint.

TREATMENT.—If there is heat and swelling about the hock joint reduce it with cold applications, then follow with the treatment prescribed for bone spavin. If there is no lameness, but only a puffy tumor without heat or swelling, and the tumor is of long standing it will do no good to treat it.

Thoroughpin.

This generally accompanies bog spavin, but not always. It

is a soft puffy tumor on each side of the hock near the back part. It seldom produces lameness. Treatment is the same as for bog spavin. A bog spavin and thoroughpin truss may be applied.

Occult Spavin.

Sometimes there will be lameness, with all the symptoms which characterize bone spavin, but there will be neither the bony enlargement of bone spavin nor the soft, puffy tumor of bog spavin. This is called an occult or "blind spavin." The treatment to be employed is that prescribed in bone spavin.

Curb.

A curb is a sprain of a ligament (*calcaneo-cuboid*) at the back part of the hock. It frequently occurs in attempting to back a heavy load, especially in deep mud or snow. It also comes from jerking the bridle-bit and throwing a horse back upon his haunches. Some hocks are loosely built and naturally rounding on the back part; such are more liable to curb than those of a more compact form

SYMPTOMS.—There will be more or less enlargement at the back part of the hock and it will be hot and painful upon pressure. There will also be lameness and the horse will be inclined to walk upon the toe.

TREATMENT.—The first thing to do is to have a shoe put upon the foot of the lame leg with heel calks three-quarters of an inch or more high and no toe calks; this is to relieve the injured part of all tension and is imperative. The next step is to apply cold water to the part until all inflammation is removed In some very mild cases this is all that is necessary; but if lameness or the enlargement either one continues, apply the biniodide of mercury blister. Allow the high-heeled shoe to remain on

for four or five weeks or until all lameness ceases. If necessary, repeat the blister.

Capped Hock.

This is an enlargement on the point of the hock, the result of external injury. Its most common cause is kicking against the side of the stall in the stable. At first the enlargement is soft and filled with bloody water, but if allowed to continue for a long time it becomes hard and calloused.

TREATMENT.—If taken at first when it is hot and painful, foment for an hour or more with hot water, then wipe dry and bathe thoroughly with the following: Tincture of arnica, aqua ammonia and distilled extract of witch hazel, equal parts, mixed. When the pain has been relieved, change to cold water, applying it only once a day, but apply the liniment three times a day. If absorption does not take place, the tumor may be punctured and then syringed out daily with carbolic acid, four drachms, and water, one pint. If after a time it becomes hard and calloused, the only resort is to have it dissected out, but this will require a veterinarian.

Acute Founder or Laminitis.

Founder (*laminitis*) is an inflammation involving the sensitive part of the foot contained inside the horny wall. It is sometimes the result of hard driving and pounding on the hard roads; but it also comes from gorging with food, drinking too much water while warm, or, as a sequel to some other disease, etc.

SYMPTOMS.—The symptoms of acute founder are well marked and need not be mistaken. There will be full bounding pulse, rapid breathing, high temperature, and an anxious look about the eyes, indicating the most intense suffering. But the most prominent symptom is the manner of standing and walk-

ing. The fore feet will be set forward and the weight of the body will be thrown back upon the hind feet to relieve the fore feet. The horse will not back, and if made to move forward, supports almost the entire weight of the body upon the hind feet, and moves with great difficulty. He will stand in the position described, letting himself back a little further all the time until at last completely worn out, he drops down and remains most of the time in a recumbent position.

TREATMENT.— If the horse is lying down, remove the shoes (it cannot be done while standing). Give a full dose of aloes at once and give half-ounce doses of nitrate of potash every four hours for twenty-four to thirty-six hours, then continue the same dose three times a day for a week. After removing the shoes, put flaxseed-meal poultices on the feet; have them as hot as can be borne without burning, and keep them so by the addition of hot water every half hour. As soon as the bowels have moved freely and the extreme pain has subsided the bottoms of the feet should be trimmed, dressing away the wall to let the frog and sole down on the ground and relieve the pressure from the wall. The poultices should be continued until the horse can walk fairly well on his feet, then omitted, and a sharp cantharidine blister should be applied around the coronet. After the bowels have been opened the horse should be fed moderately upon soft feed. Sometimes founder comes from driving a horse when the bowels are loose and causing scouring; in that case a dose of raw linseed oil, with an ounce or two of laudanum added, should be given instead of the aloes.

Chronic Founder or Laminitis.

When a case of acute founder has been neglected or improperly treated, or when there have been repeated attacks, the

sensitive structures of the feet become permanently changed and we have chronic founder or laminitis.

SYMPTOMS.—The hoofs become dry and brittle and the horse walks with a short, mincing step, and if the disease is well advanced he tries to throw his weight upon the heels of the affected feet. If the bottoms of the feet are examined there will often be found a partial separation of the wall from the sole.

TREATMENT.—Treatment can only be palliative. Remove the shoes and poultice the feet to remove the soreness, then apply the cantharidine blister around the coronet and turn the horse out on wet ground for a week or two if possible. In shoeing, the sole of the foot should not be cut away to allow the shoe to rest entirely upon the wall. A bar shoe to bring pressure upon the frog generally gives the best satisfaction.

Pumiced Foot.

So-called "pumiced foot" is a condition in which the sole drops down or becomes convex because of the pressure of the coffin bone in its descent. It is the result of severe and repeated attacks of laminitis, undue cutting of the wall and sole in shoeing, etc.

Treatment can only be applied in a palliative way. Cold water may be applied in any way to control the inflammation, and either a wide, concaved-seating shoe or a well-fitted bar shoe should be applied. Such a horse may do service at slow work on the farm but will never do to drive on the roads.

Nail Punctures and Bruises.

Horses are always more or less liable to injuries to the feet from nails and sharp stones. Nail punctures are most liable to occur to horses driven upon the streets and alleys of cities, while cuts and bruises from sharp stones happen oftenest on

country roads and in work upon the farm. As the liability to such injuries is so great, the foot should always be examined before a decision is given, no matter what other symptoms of lameness may be exhibited.

TREATMENT.—If there is a shoe on the foot, remove it; dress out the sole until the point of injury is found, then remove any foreign body that may be there and also remove enough of the sole to make a free outlet for the discharge; apply a little turpentine to the wound, then place the foot in a flaxseed-meal poultice for a day or two until the tenderness is removed, then omit the poultice but clean out the opening through the sole once a day and fill it with cotton saturated with pine tar. When the sole has formed over the wound again the shoe can be put on and the animal will be ready for work. More serious and permanent injuries result from neglect in wounds of the foot than from any other class. Seemingly slight, at first, they are given little attention, probably forgotten. Sometimes the lameness may be very slight for a few days then grow suddenly worse; the foot becomes hot and painful; pus forms and, having no outlet, burrows under the horn until the entire sole of the foot frequently has to be removed and the animal is unable to work for weeks. Neglected nail punctures often produce quittor. And tetanus, or lockjaw, is more liable to follow from neglect of wounds of the feet than from wounds on any other part of the animal.

Quittor.

Quittor may be defined as fistula of the foot. It is a fistulous opening formed in the sensitive part of the foot between the internal structures and the horny wall. It may come from nail punctures, bruises or any other wounds of the foot, especially if neglected and the pus allowed to burrow.

SYMPTOMS.—It begins with a hard and painful swelling at the top of the hoof, which breaks open in time and discharges pus. Sometimes the entire coronet will swell and openings will form in different places; pipes form and the openings will not heal.

TREATMENT.—Remove the shoe and cut in from the bottom of the foot to ascertain if the pus cavity reaches low down. If an exit for the pus can be found below, the sinuses may not have to be opened above. But if nothing can be reached from the bottom, probe the sinuses from above and open them up carefully, cutting through the walls of the hoof if necessary, only take good care not to divide the coronary ligament at the top of the hoof. When they are all open, syringe into them once a day till all unhealthy growth is destroyed, a little of the following: Chloride of zinc, one drachm; water, one ounce; mix. If the dead tissues do not slough out readily apply poultices for a day or two; powdered charcoal dusted over the poultice will add to its cleansing effect. When the sore is healthy dissolve four drachms of chloride of zinc in one pint of water and use as a daily dressing and it will heal readily.

Thrush.

Thrush is an irritation that takes place first in the cleft of the frog and the deep fissures at the sides of the frog and, if allowed to run on, the entire frog becomes undermined and diseased. It is most common in the hind feet and is generally due to standing in wet and filthy stables. It can be easily recognized by the fetid smell when the foot is cleaned.

TREATMENT.—Remove the shoe; clean the foot thoroughly and remove any loose parts of frog that may cover a diseased part. If the case is only an ordinary one, dissolve one ounce of sulphate of copper in one pint of water and saturate the affected

part with it once a day for two or three days, then press the crevices full of cotton saturated with pine tar. In severe cases it may be necessary to soak the foot two or three hours a day for a couple of days in the following: Sulphate of copper, one pound; warm water, five gallons; then saturate the affected part once a day with the following: Chloride of zinc, four drachms; water, one pint; and as soon as the parts begin to harden, the zinc should be omitted and the tar and cotton used as before.

Gravel.

Sometimes when horses are barefooted and the sole of the hoof worn thin, small gravel will break through the sole and work up along the inside of the horny wall. If not removed the gravel will continue to work upward until it comes out above the hoof and may terminate in quittor if not attended to.

SYMPTOMS.—In the beginning there will be lameness, as from a nail puncture or bruise of the sole. If the sole of the foot is pressed with a pair of pinchers the tender part may be located and, if not gone too far, the gravel may be found and removed; but, if not removed, in a week or two a slight swelling and tenderness may be seen at the top of the hoof.

TREATMENT.—If the gravel can be located at first and removed from the bottom, poultice the foot and treat as for bruise or puncture. But if the swelling begins to show at the top keep the foot in warm poultices to hasten the outlet at the top. When it breaks syringe it out carefully with carbolized water and endeavor to get it open below where the gravel entered. If this can be kept open it will soon heal. But if not it will have to be treated the same as quittor.

Canker.

Canker is an obstinate disease which may follow a neglected

case of any of the diseases in which the sole or wall becomes broken or destroyed, and the sensitive parts become involved. Filth also is a very active factor in producing it. It sometimes starts from grease heel.

SYMPTOMS —A spongy, fungus growth springs up from some old wound about the foot, making the horse lame. It is hard to control and if cut away soon grows out again. It sometimes grows up in leaves or flakes and bleeds very easily.

TREATMENT.—Cut away all that can be reached with the knife and control the bleeding by searing with a hot iron or by applying tincture of iron and binding it up in cotton till next day. When all bleeding has been stopped take chloride of zinc and add just enough water to dissolve it; apply it freely, and saturate cotton with the zinc solution and bind on the part, keeping it there for twenty-four hours. When the fungus growth has been completely destroyed, dust the sore once a day with calomel and cover with cotton saturated with pine tar and apply pressure. If the fungus growth begins to start up again dust it over with powdered blue vitriol. If you are persevering you may succeed in curing it, but it will take time.

Calks.

Where horses are kept shod, and especially when working on the farm in soft ground, they are liable to injuries from the shoe calks. These are often quite severe and, if neglected, may become serious. They should be cleansed with warm water and, if swollen and painful, a warm poultice should be applied until relief is obtained. It may then be syringed out two or three times a day with White Lotion. This is better while the sore is open and raw, as it will not gather dirt as a greasy ointment would do.

Ringbone.

Ringbone is the name given to an enlargement or bony growth which forms about the pastern. Sometimes it is located at the upper and sometimes at the lower joint when it is the more serious. As the enlargement often extends almost around the limb it has received the name of ringbone. It may come from a sprain or anything else that could cause irritation in the joint. It may result from inflammation caused by a wire cut near the joint; and in some instances it is due to hereditary influence.

SYMPTOMS.—If there is an enlargement it is plain to the eye; and sometimes there will be enlargement without lameness. But there are cases in which the enlargement is very small, yet the animal is quite lame, and it will require careful scrutiny to locate it. There will be unusual heat about the joint, and pain upon pressure to the parts with the fingers; there will be lameness when first starting out which will grow better and may disappear on warming up; but it will return as soon as the animal is allowed to stand long enough to cool off. But there are cases in which the lameness does not decrease by warming up, and such cases are generally incurable.

TREATMENT.—In many cases it is not satisfactory. If there is simply enlargement without lameness, treatment is not only unnecessary but useless, as the enlargement cannot be removed. If the lameness is noticed in the beginning, before the bony deposit has begun to form, apply cold water to the part two or three hours a day till inflammation has been removed, then apply the Biniodide of Mercury Blister once every three or four weeks until three applications have been given. The animal should be in the stable and walk as little as possible during treatment. If there is no improvement under this treatment the

only resort is the firing iron in the hands of a competent veterinarian.

Side Bones.

These are enlargements just above the top of the hoof near the back part of the quarter. They are the ossification, or changing into bone, of the lateral cartilages that surround and extend back from the wings of the coffin bone. There may be one on each side of the foot or it may be only on one side. They may also be on one or both feet. There will be lameness, but it is not so serious as ringbone.

TREATMENT.—The shoe must be removed and the hoof cut away underneath the enlargement; if the frog strikes the ground all the better. If there is much inflammation reduce it with cold water, and it would be well to stand the feet in cold water for several hours each day for several days until the unnatural heat is all gone. Then apply the Biniodide of Mercury Blister and repeat in three weeks. Give the horse complete rest.

Contraction.

Contraction is not a disease itself but is only the result of long favoring of the foot from some disease. Corns, navicular disease, disease of the tendons or any other disease that causes the foot or leg to be favored or rested often will in time cause contraction of the hoof.

Treatment consists in locating and removing the cause, whatever it may be, and bringing the foot into natural use, and it will assume its proper size as the new growth appears.

Cocked Ankles.

Cocked ankles, also called knuckling, is only a symptom of disease in some part of the leg or foot. Sore heels, sore tendons, rheumatism in the joint and other diseases will cause knuckling,

and the true cause should first be found and then treatment for it can be found under its proper heading.

Dislocations.

Dislocation of a joint in the horse is not of very common occurrence, although it may happen sometimes. When it does take place it is generally serious, as the violence required to cause a dislocation of the joint is generally so great as to rupture the ligaments surrounding it. In all cases of dislocation we advise calling a veterinarian as promptly as possible, as a knowledge of the anatomy of the parts to be treated is necessary to success. If no veterinarian can be found, the animal may be secured and the reduction of the dislocation attempted, governing the operation as the case demands, as no special rules can be laid down that would be of material benefit to the inexperienced. When the parts are brought into position they may be held in place by bandaging as in fracture.

Fractures.

Horses are always more or less liable to fractures of bones, both of limbs and body. They occur from falls, from kicks from other animals and from running against solid bodies, etc. Fractures are of different degrees of severity, and upon this and their location depends the degree of success in treatment. If only the bone is fractured with little or no displacement, that much is favorable, but if the bone is badly shattered, the skin and muscles torn and splinters of bone piercing through, the case is hopeless. As the treatment of fracture requires the skill of an experienced practitioner to ensure anything like success, space will not be taken here for more than a few general hints. Fracture is easily recognized by the extreme lameness and by the grating sound produced by the bones when the limb is moved

with the hand. When a fracture is known to exist, a veterinarian should be called at once if it is desired to save the animal. If it must be attempted by a novice, then get some strips of muslin, some starch, some splints and also some cotton. Get the ends of the bones into position, then smear the skin and hair with starch and wind the bandage around it, applying the starch to the bandage as it is wound on the limb; level any uneven places up with the cotton by putting it between the layers of the bandage, and when four or five layers of the muslin have been put on, place one of the splints on each side and one behind, but none in front, and apply more of the bandage and starch. The horse may be placed in slings or not as he seems to do best. Some horses do better out of slings. If the limb swells, the bandage should be slit in at the end where the swelling is worst. The bandage should be left on six weeks in an ordinary case, and then cut away carefully.

Open Joint.

Sometimes when a wound is near a joint the synovial sac is opened and the synovial fluid (joint water) is allowed to escape and then it becomes more serious. If the sac has only been punctured with some sharp-pointed instrument, and the bone has not been injured, it is not so serious as when the sac has been laid open to some extent and the surrounding tissues badly lacerated. If the irritation is sufficient to cause the formation of pus in the joint, the articular cartilage becomes destroyed and the only hope of a cure lies in anchylosis (union of the bones) and making the joint stiff. Sometimes, where there is great laceration of the tissues, sloughing sets in, fever runs high, the appetite fails and the poor animal suffers such pain that it is an act of mercy to kill it and put it out of misery.

TREATMENT.—If there is a punctured wound and open joint

is suspicioned, which will be from the flow of synovia, do not probe the wound to ascertain its depth, as this will only increase the irritation, but treat it only on supposition rather than destroy all chance of a cure by trying to learn the facts. Sponge the wound with carbolized water (one teaspoonful of acid to the pint of water) then mix together equal parts of flour and ground flaxseed and mix into a poultice with boiling water. When this gets cold spread it on a cloth and bind on the wound; keep the animal as quiet as possible and change the poultice once a day.

But if the wound is lacerated and pus begins to form, treat as follows: Take carbolic acid, one drachm; glycerine, two drachms; add flour enough to form a stiff paste. Cleanse the wound by injecting water over it carefully with a syringe, then make a plug of the paste and put it in the opening of the joint, then apply the poultice as before, only omit the flour and make it of pure ground flaxseed. This poultice and plug both must be changed twice a day until the pus ceases and clear synovia alone flows from the joint, when the plug of paste should be omitted and the flour added to the poultice again and applied as before until the opening is entirely closed. The horse must be kept as quiet as possible; he should not be led out, but feed and water should be carried to him.

Final Hints.

All cases of lameness or injury should be attended to at once. A little delay often precludes all possibility of a cure. Complete rest from labor should be given; give the run of a box stall or small yard away from other animals. Pain increases thirst; do not let an animal suffer for water.

MISCELLANEOUS SUBJECTS.

Castration.

Although we are strongly in favor of the employment of either a veterinarian or a "professional castrator" to perform this operation instead of giving the job to anyone who may have the "cheek" to attempt it, especially when some one else furnishes the subject for the experiment, yet, as it is not always possible to obtain an experienced operator, we will give a few simple rules by which the owner may be able to do his own work in a case of necessity, together with hints from our own experience in regard to the proper age and time of year at which to perform the operation.

At What Age to Castrate.

There is a great difference of opinion as to the age at which a colt should be castrated. Some writers, in high authority, advocate castration at any time after the colt has become straightened up after birth or as soon as the testicles can be got hold of. Whilst others favor letting the colt run until two or even three years of age in order to obtain better development. We have castrated at all ages from the sucking colt of one month to the old stallion, and while we admit that the younger the colt the less the pain attending the operation, yet there is one serious objection to the operation at that age. It is well known that many young colts, either at birth or soon after, are affected with scrotal hernia—rupture of the inguinal region, allowing some part of the entrails to descend into the scrotum, which will be

treated under Rupture in Foals, and as we always examine the parts thoroughly before beginning the operation, we have found many cases in which, although there was no rupture, the parts appeared so weak as to be in danger of breaking through with the slightest struggling possible during the operation ; or, if not then, it would certainly take place during the weakened condition from the slight inflammation that must necessarily follow the operation Castration at weaning time, providing the season is favorable, does not meet with this objection, as the parts have grown stronger. But, unless there is some good reason for having the operation performed early, we consider the age of one year the best, and it should be done not later than two years old unless for some good reason. The development of the colt should always be taken into consideration as follows ; Beginning at the age of one year, if the fore and hind quarters are equally developed, any time up to the age of two years will do. If the fore quarters are heavy, the neck full and the hind quarters light, the sooner it is done the better. But, if the hind quarters are square and heavy and the fore quarters light and the neck low, the operation had better be deferred until the fore parts are more fully developed.

Season.

The writer has successfully castrated horses in almost every month in the year. Work done in January, with no more than ordinary care and stabling, gave good satisfaction. Work done during the hot weather of August was equally successful. Yet we think the spring and early summer months the most favorable season for the operation. While on the other hand we think the most unfavorable time to be in the fall after the hot sun of an unusually-dry summer has converted the pools of stagnant water into beds of muck—regular cess-pools of filth and disease—

and then a copious rainfall drenches the parched earth, the pools become filled with fresh, cool, but nevertheless infectious water, inviting to stock but disease-producing withal. The once harmless dead and dry vegetation, now moistened by the rain, begins to decay, and the atmosphere becomes rife with miasma from the putrefying mass.

It is a well-known fact that in the human family typhoid and malarial fevers are more prevalent at certain seasons and during some years than at others. We also know that a tendency to gangrenous and septicemic complications makes the treatment of wounds more difficult at certain times than at others. And it is also well known by men who have followed castrating for a number of years that, without any apparent cause, some seasons the colts fail to do well. With these undeniable facts staring us in the face, I have set about to find the cause, and I have observed that a season of showers interspersed with hot, sultry sunshine at any time of the year is unfavorable to the healing of wounds from any cause, and when the poisonous efluvia from decaying vegetation is added, the danger is tenfold worse.

Health.

The condition of the animal as regards health is important. No animal should be castrated when it is affected with disease. The most prevalent disease among colts during the castrating season is strangles or colt distemper. He who castrates a colt with distemper invites trouble; and he generally gets it. Neither should it be done when a colt is very thin in flesh.

The Operation.

If the bowels are not loose from running on grass the colt should have soft feed for a few days previous to the operation, and nothing for six hours preceeding it. With plenty of assist-

ance at hand, cast and tie him securely, roll him partly on his back and have an assistant to hold the hock of the uppermost leg out of the way. Examine for the testicles and take the one first that seems hardest to get. Grasp the testicle with the left hand and with a sharp knife cut half an inch from and parallel with the center line of the scrotum. Cut the coverings carefully until the testicle comes out, but do not cut the testicle. Take care to make the incision in the scrotum of good length and well forward to prevent closing too soon. It is always best to expose both testicles before removing the first. There are different methods of preventing hemorrhage, each of which has been successful when properly manipulated. The old method of clamping has been used successfully for years. The testicle should be drawn down moderately and the clamps placed well up on the cord and closed with care to have sufficient pressure on the artery to stop the blood. When both sides have been thus secured the cords should be severed with the knife two or three inches below the clamp.

Another method of securing the cord is by ligature. In this way of operating, a strong, waxed linen thread is used to secure the artery instead of the clamps.

But when properly used we consider the ecraseur the most humane treatment with which to secure the artery, as well as the most likely to be attended with success. But with this, as with the other methods, the proper way to learn to use it is from a successful operator in person and not from printed instructions; hence we will only give a few hints in regard to its use which may be of value even to those who have had some experience with the instrument.

In the first place we have never seen a new ecraseur that did not have the inside of the chain, and sometimes the edges of the slot too sharp; it cuts clean without crushing, and bleed-

ing ensues The remedy is to dull the edges with a small file.

The instrument must be kept clean ; clots of blood must not be allowed to remain between the links of the chain. Wash in clean water after each operation and if convenient use carbolic acid in the water.

In the operation turn the cord around until the artery is next the slot ; draw down the edges of the last covering of the testicles in the chain around the cord, then draw the chain up carefully until it crushes the artery but does not cut it ; now slack the chain and slide it half an inch toward the testicle, then draw it up again until the cord is cut through. This double crushing makes the cord doubly secure and bleeding is impossible.

After either mode of operating a little carbolized sweet oil may be poured into each side of the scrotum and the animal released.

We have not written to such length expecting to teach men to operate, but to enable stockowners to guard against unscrupulous men with more gall than knowledge of the business, who, every spring, "go about as a roaring lion seeking whom they may devour." They castrate in all kinds of weather ; they operate alike on sick and well, telling the owner that it will do a colt with distemper good to bleed him a little ; "it will give him a new start." And it generally does it—on his last journey.

Employ only some one whom you know ; and whether he be a graduated veterinarian or only a professional castrator, let him be a man of experience and also with a reputation for honesty and square dealing.

Bleeding After Castration.

Sometimes it happens that an animal will bleed after the operation. A small stream of dark blood will generally soon

stop itself, being from veins. But if the stream is large and bright red it is from the artery and should be stopped. The best plan is to cast the animal and tie the artery; but, if not possible, fill the scrotum with cotton saturated with tincture of iron, if you have it, or roll it in a mixture of salt and soot and, when the scrotum is full of cotton, put in a stitch or two to keep it there till twenty-four to forty-eight hours after when the stitches should be cut and the cotton left to work out itself. A stream of cold water allowed to fall a distance of two or three feet upon the animal's loins will often act like a charm and might be used in connection with the cotton.

Swelling After Castration.

After a colt has been castrated he must be allowed plenty of exercise and be made to take it if he acts stiff. If the swelling increases bathe the scrotum with hot water; inject the cuts with turpentine, one part, and sweet oil or clean lard, two parts, mixed; then move him around slowly at first, but increasing to a lively walk as he warms up. As soon as healthy pus begins to flow the swelling generally goes down.

Scirrhus Cord.

This is a condition in which the cord, from undue irritation, grows to an unusual size and protrudes from the wound in the scrotum in the shape of a tumor. The only remedy for it is to cast the animal and remove the growth. But as the operation requires more than ordinary skill it is not necessary to describe it.

Breeding.

In treating this subject we shall be compelled, for want of space, to confine ourselves to giving only a general outline, and recommend those who desire to go into the finer details to that most excellent work, Sanders' Science of Breeding. There is no

other one thing which so affects the value and usefulness of live stock upon the farm as does the selection of those to be used for breeding purposes; and a more judicious selection would enhance the value of the stock on many a farm today.

As to the best breed to raise, it is a matter of choice to each individual according to the use for which he intends them and the demands of the market. But whatever be the breed, select only sound, healthy stock. Never breed a mare because she is lame and unable to earn her keeping by work. Many, if not all, defects in the dam are transmitted to the offspring. Never breed a mare until near maturity. It is a habit of some farmers to breed fillies at two years of age, and then often to some inferior stallion because he is cheap. No mare should be served until three years old and not then unless well developed. Never breed an old, broken down mare. Select only such as are fully matured, well developed, vigorous and of kind disposition, and mate with a stallion selected with the same care, and you may expect a favorable result.

Care of Mare.

The period of gestation in a mare has been placed at eleven months, although occasionally one will go a few days over twelve months. A mare should not be confined in the stable, but if not at work should be allowed to run out at least a part of each day. Moderate work will do no harm, but she should be fed liberally and sheltered from the storms.

Although better loose at all times, she may be tied up until within a month of foaling time, when she should be left loose in a box stall alone. Mares, if left alone, generally deliver their foals without trouble; but in case of a failure an experienced person should be called, as no printed directions would enable

an inexperienced person to operate with safety to the mare and foal both. After foaling, feed on light diet for a few days.

Care of Foal.

The foal should not be disturbed until it has had time to get dry and become accustomed to its new life, and it will generally get up and try to suck. If it should not be able to stand after an hour or two, a little assistance may be given. The first milk of the dam when taken freely has a medicinal effect in cleansing the little fellow's bowels; but if no passage is seen by the end of twenty-four hours, inject into the rectum a tablespoonful of glycerine, repeating it every fifteen minutes until there is a full passage. We have saved life with injections of glycerine when the colt would not have lived long enough for a dose of oil to operate. It can be repeated every day until a regular action of the bowels is established.

In case it becomes necessary to feed a young colt by hand, only new milk from a cow lately fresh should be used, and as the milk of the cow is not as sweet as that of the mare, a little sugar should be added.

Rupture in Foals.

As this is of frequent occurrence, which we know from the number of men who come to us each year for advice, and, as men are often wrongly advised by "hoss doctors" looking for a job, we will repeat the advice we have always given, although nature almost invariably cheated us out of a job. In rupture, either of the scrotum or the navel, unless there is pain from strangulation of the intestines, our plan is to let it alone; and we feel safe in saying that fully three-fourths of such cases will dissappear by the end of a year, thus saving the colt the pain and the owner the expense and risk of an operation. If, at the end of a year,

there has been no decrease in the size of the sac, then we advise an operation on a rupture in either of the localities mentioned. But there is a difference in the manner of operating.

If the rupture is at the navel the colt must be turned upon its back and the contents of the sac returned through the opening into the abdominal cavity; the loose skin should then be drawn up and a strong cord tied several times around it as close as possible to the abdominal wall, and drawn tight enough to stop the circulation. If the cord is passed through the skin with a large needle it will prevent slipping, and in about ten days the sac will drop off and the part will heal over.

In rupture of the scrotum the operation is that of castration in case of a rupture, and should not be undertaken by any one without some knowledge of the parts. The colt should be cast and tied as for ordinary castration; turn him upon his back, return the intestines, then open the sac all except the last covering of the testicle. This should be stripped carefully by the fingers directly up to the opening of the abdominal wall and there secured by tying as in rupture of the navel; then the cord of the testicle can be severed two inches below. When both testicles have been removed the colt should be allowed to rise. Treat the same as in ordinary castration.

Glanders—Chronic and Acute.

Glanders is a specific contagious disease due to the entrance into the blood of a living germ—*Bacillus mallei*. This disease is communicated from one animal to another by inoculation or actual contact with the virus only, and not, as many suppose, by simply standing in the same stable with, but at some distance from, a glanderous horse. The old theory that glanders sometimes originated spontaneously from filthy stables, severe and neglected cases of distemper and nasal gleet have long ago been

discarded as incorrect. While it is true that any debilitating disease will render the system more susceptable to the contagion, yet when a case of distemper or any other disease terminates in glanders, it is evident that the patient has become inoculated by coming in actual contact with the virus of that disease.

The ways of contagion are numerous. It is often communicated through public watering troughs, hitching posts and from running at large upon the commons. It is not necessary that the virus be taken up by the healthy animal as soon as it has been discharged by the diseased one, but it may become dried upon hitching posts and upon the manger in the stable and remain for several weeks and then be taken up by a healthy animal and be capable of producing the disease.

Symptoms.—As the disease is most commonly seen in the chronic form, the symptoms are not generally well marked in the beginning. It may make its appearance in the form of a mild attack of catarrhal fever, with only a slight, thin mucous-like discharge from one or both nostrils; in a short time this discharge takes on a whitish, glary appearance, becomes gluey and adheres to the nostril, partly clogging it up if not wiped away. The sub-maxillary glands between the branches of the lower jaw first become swollen and painful, but instead of suppurating as in distemper, they become hardened and remain so throughout the disease. Although a close observer might notice the unthrifty condition, the animal might be able to work on for months or even several years without showing any more definite symptoms and at the same time be capable of communicating the disease to other horses. After some time small, ragged ulcers form on the mucous membrane of the nostrils and the symptoms are very apparent. This is known as the chronic form.

In the acute form the symptoms are the same except that they are developed more rapidly, the disease generally running

its course and ending in death in from one to three months. Mules nearly always take the acute form.

Farcy.

Farcy, or as it is commonly called, button farcy, is simply another form of glanders, which, instead of affecting the internal organs or the mucous membrane, characterizes itself by small tumors commonly called *farcy buds*. These buds generally make their appearance on the inside of one or both hind legs, but may appear on any part of the body. If a bud is cut open it discharges a sticky, amber-colored fluid which corresponds to the nasal discharge in glanders.

As it is a most difficult thing for even an expert to diagnose a case of glanders with any certainty in the first stages, it is utterly impossible to give any rule by which the inexperienced might be able to form a correct idea of the disease; hence, we advise calling a competent veterinarian to examine the case in person whenever there is a nasal discharge the nature of which is not known.

Locoism.

There are two plants, commonly known as "loco" or "crazy weed," which, when eaten for some length of time, produce the peculiar condition called "locoism" or more commonly, "locoed." These terms, like many other oddly-sounding words and phrases of the West are of Spanish origin. The word "loco" in the Spanish tongue signifies fool; hence, the literal translation of the phrase "loco weed" is fool weed. Botanically, one of the plants is called *Astragalus Mollissimus*, the other *Oxytropis Lamberti*, both belonging to the natural order *Leguminosæ*. It is not during the summer months when the range is covered with green grass that animals first learn the habit of eating loco; but after the pasturage has become closely eaten and dry and the

ground is covered with snow, then the feed being scarce, the half-starved animals wandering about in search of something with which to satisfy the pangs of hunger, are tempted to eat the bunches of "loco weed." The center of the bunch, being well protected by the outer leaves, is tender and juicy, even in midwinter, and also has a peculiar sweetish taste, which, once learned, seems to be relished by the animal and is never forgotten. However, an animal when first beginning to eat the weed will not, as a rule, leave other food to search for it, but will only eat it as it accidentally finds it in the way.

I have seen horses that had been eating it in this casual way for a month or more, and were then taken up and fed upon hay and grain, which never exhibited any of the symptoms of the disease whatever. And I have also seen horses that had become affected to quite an extent—even so much that they would not lead, but would run backward instead—taken up and fed upon hay and grain, but given no medicines, and in time recovered sufficiently to be broken to harness and become good workers in the team, but would never learn to lead by the halter and were never safe under the saddle.

Then I have seen others in which the habit of eating "loco" had become so confirmed that the appetite seemed to crave it in preference to any other food. Such an animal will, at first, generally feed apart from, but within sight of, its companions; it will follow a short distance behind them as they travel to water; wait till they drink and start back, then approach the water cautiously, drink and follow back to the grazing grounds. But after a while it will abandon the herd entirely, search out the patches of "loco," where it will remain, only leaving when forced by thirst to go to water; then it will start off in a dazed sort of a way, walking with feeble and uncertain step, returning to the same place again as soon as it has quenched its thirst.

The poor victim continues in this routine, gradually growing thinner in flesh until it finally dies, apparently more because of mal-assimilation than starvation, unless, as frequently happens, it falls into a pit or runs over a bluff and breaks its neck.

The active principle, whatever it is, of the plant seems to affect chiefly the brain, but to some extent the entire nervous system. What that active principle is or under what conditions it must be eaten has never yet been ascertained. One of the peculiar effects of the plant upon the animal eating it is the dilatation of the pupil of the eye, as after administering belladonna or its alkaloid atropine.

TREATMENT.—In extremely bad cases treatment is useless; but in only moderately-affected cases the symptoms can be so palliated as to render the horse capable of doing good service in the team for several years. Place the animal in a stall where all is quiet; give a sufficient dose of Barbadoes aloes to operate moderately; give laudanum in drench, or morphia hypodermically, often enough to correct the dilatation of the pupil of the eye; give bromide of potassium in doses of two or three drachms each often enough to quiet the symptoms of nervousness, adding an equal quantity of chloral hydrate to each dose if the bromide does not have the desired effect. As soon as the foolish actions of the animal begin to subside it should be given, twice a day as a tonic, a dose composed of two drachms each of gentian and fœnugreek, one drachm of sulphate of iron and one drachm of nux vomica. Feed liberally and give pure water to drink. Turn the animal out in a yard every day for exercise, and after it has become tractable it may be put to light work. The degree of success in managing such a horse will depend much upon the coolness and patience of the driver. A "locoed" horse and a "locoed" driver should never be allowed in the same team.

Age of the Horse.

As the teeth furnish the best means of determining the age of the horse, a few words upon that subject will not be out of place. The horse has two sets of teeth, the temporary or milk teeth, twenty-four in number, which are shed to give place to the permanent ones, which are forty in number in the horse; the mare, being minus the tusks or canine teeth, has only thirty-six. As it is only with the incisors we have to deal in determining the age of the horse, we will confine our remarks to them alone. If the young foal is born at its proper time, it has at birth, or within a few days after, four temporary incisors, two above and two below, called the central incisors. At about the age of one month four more teeth appear, one on the outside of each of the centrals; these are called the lateral incisors. At about the age of eight months the third set, or corner incisors, make their appearance. At the age of two and one-half years the central incisors are shed and by the time the animal is three years old they will have been replaced by the permanent teeth. The lateral incisors are shed at three and a half and replaced at four; the corner teeth are shed at four and a half and replaced at five, when, in the male, the canine teeth will have appeared and the animal is said to have a full mouth.

From this time on the age can only be determined by the wear, shape and general appearance of the teeth, to do which requires considerable experience in order to become an expert. As the grinding surfaces of the incisors wear away, their inner walls will come into wear and the cups gradually become more shallow in the same order in which the temporary teeth were shed and replaced by the permanent ones. By observation it will be seen that, as the permanent teeth make their appearance, only the anterior or outer walls come into wear at first, but at

the age of six years the posterior or inner walls of the central incisors will be up level and in wear and the cups will have grown more shallow if they have not entirely disappeared. At seven years old the laterals become likewise and at eight the corner ones are the same.

Although the upper teeth wear more slowly than the lower ones, yet they must, to some extent, serve as a guide to the horse's age from this time on; and the same changes will take place in them that the lower ones have already undergone, beginning with the centrals at nine, the laterals at ten and the corners at eleven. The teeth will also have changed their shape to some extent; they will have grown more narrow from side to side and wider from front to back. But these changes will not be the same in all horses; some teeth wear more rapidly than others. On most horses there is a groove on the outside of the upper corner incisor which makes its appearance at the upper part of the tooth nearest the gum at about ten years of age, and, as the tooth continues to rise from the alveolar process, extends down the tooth as follows: At the age of twelve and a half the groove extends down one-fourth the length of the tooth; at fifteen, one-half; at seventeen and a half, three-qarters; and at twenty-one, the entire length of the tooth. While it must be admitted that these marks will be somewhat of a puzzle to the average farmer or horseman, yet with a little careful observation and practice almost any one may be able to determine the age of a horse nearly enough for all practical purposes.

PART SECOND.

Diseases of Cattle,

THEIR CAUSES;

THEIR SYMPTOMS;

THEIR TREATMENT.

INTRODUCTORY HINTS.

With the cattle industry occupying the important position which it now does in the wealth and resources of the country it would be mere folly to place this work in the hands of the farmer without saying something upon this subject; but, as a lengthy treatise upon the subject would only tend to confound and mystify the average reader, the remarks given here will be confined to the most common diseases of cattle, such as lie within the power of the farmer to treat, together with a few cautionary hints upon some contagious diseases which have an important bearing upon the health of the human family.

Action of Medicines in Cattle.

Owing to the sluggish nature of cattle some drugs do not have the same effect upon them that they do upon horses. Aloes, even in large doses, have little or no effect while Epsom salts are an effective purge. Oil is also excellent as a mild purge or laxative; in the absence of oil, lard may be used instead. None of the preparations of mercury should be used by the novice as their action is sometimes violent and injurious.

All medicines are best given in liquid form and should be of considerable bulk, owing to the great capacity of the digestive apparatus. The dose also is, as a rule, double the size of that given to the horse and, in some medicines, even larger.

Signs of Disease.

In cattle, as well as in horses, it is necessary that the at-

tendant should know the signs of health before he can learn to distinguish the symptoms of disease.

A staring coat and dry, harsh skin; a dull, sunken eye; a cough; a poor or a capricious appetite; a dry muzzle and suspended rumination are all indications of interference with the functions of some part of the animal organism, while the opposite of these conditions affords good grounds for considering the animal in good health.

Pulse, Temperature and Respiration.

As each expansion and contraction of the heart as it pumps the blood throughout the system causes a beat or pulsation which can be perceptably felt wherever an artery passes near the surface an idea of the circulation can be obtained by "taking the pulse." The places where the pulse may be taken are at the angle of the lower jaw as in the horse, about the middle of the first rib, or on the under side of the root of the tail; or in fact it may be taken at any point where an artery nears the surface, especially if it passes over a bone. The number of pulse beats per minute in cattle is from 45 to 55 and should be regular, full, round and soft.

The temperature in cattle is also somewhat higher than in horses, being from about 100 degrees to 101 degrees Fah., and anything above this may be looked upon as indicative of some functional derangement. The respirations, in health, are from 10 to 15 per minute which may easily be seen from the heaving of the sides of the chest. But in examining for disease it should be remembered that surrounding circumstances exert a powerful influence upon the condition of an animal. Thus anything which tends to worry or excite, and especially being chased by dogs, will increase the frequency of both the pulse and respirations and will sometimes even cause an elevation of temperature.

Hence the necessity of always having a sick animal in some quiet place separate from the others and of approaching it as gently as possible when an examination is to be made

The proportioning of doses according to age can be learned from the chapter on "Administering Medicines" in the first part of this book. Also where a remedy is recommended without giving its manner of preparation the formula will be found complete under "Medicines and how to Prepare Them."

Prompt Action Necessary.

Owing to the sluggish nature of cattle and their disposition to "give up" in disease, early and prompt treatment is very essential; and to nurse a sick cow properly often requires more patience and perseverance than to nurse a sick horse.

DISEASES OF THE RESPIRATORY ORGANS.

Catarrh or Common Cold.

Catarrh or cold is the result of exposure to cold or wet weather. Standing in damp, filthy stables or in a current of cold air are prolific sources of the disease.

SYMPTOMS.—There will be poor appetite, staring coat, dry muzzle and a watery discharge from eyes and nostrils. The mucous membrane lining the nostrils will be red and inflamed, and sometimes this condition will extend to the throat and larynx and then there will be swelling of the throat and difficult breathing and sometimes a cough.

TREATMENT.—Place the animal in a warm, but well-ventilated stable, and if the weather is cold put on a blanket. Give a pint of lard or raw oil at once. Give the following drench every four hours until the muzzle becomes moist and there are signs of improvement. Sweet spirits of nitre, two ounces; nitrate of potash, four drachms; sulphate of cinchonida, one drachm; water, one pint. When there is well-marked improvement this may be reduced to three times a day. Steam the nostrils occasionally with boiling water to which an ounce of turpentine has been added. If the throat is sore or there is a cough apply the ammoniacal liniment, rubbing it in well three or four times a day, until the skin becomes sore. Give plenty of cold water to drink and feed on soft food as bran mash, boiled oats, vegetables and good, clean, sweet hay.

Pneumonia or Inflammation of the Lungs.

Pneumonia is inflammation of the lung substance and may be in one or both lungs. It is often caused by exposure to cold or wet, or by sudden changes of the weather; it may follow a severe case of catarrh.

Symptoms.—One of the first symptoms is a chill or shivering, but this often passes unnoticed. The appetite fails, rumination ceases, the muzzle becomes dry, and the nostrils are dilated. The breathing becomes more rapid and difficult and if the ear is held against the side of the chest there will be an absence of the natural respiratory murmur, and instead will sometimes be heard a dry wheezing sound or, if the pleura is involved, there will be a rasping sound as of two pieces of dry leather being rubbed together. The pulse will be strong and full at first but as the disease progresses it will grow small, weak and wiry and gradually increase in frequency. The temperature may be from 103 degrees to 105 degrees Fah., which can only be determined by the use of the thermometer. The animal stands with its fore legs wider apart than usual. Unlike horses, cattle sometimes lie down in pneumonia always resting upon the sternum; they evince signs of pain and do not remain in a recumbent position long at a time.

Treatment.—In this disease prompt action and good nursing are of the greatest importance; the patient must be shielded from cold and wet. Give four drachms of nitrate of potash and one drachm of the sulphate of cinchonida every four hours until the fever begins to abate then give the same dose three times a day. If the patient is thin in flesh or appears weak, give with each dose two ounces of sweet spirits of nitre or three ounces of Mindererus' spirit. If the bowels are not already loose give from one to three drachms of calomel in the beginning of the

disease. These medicines are best given in gruel. Rub the sides of the chest thoroughly with ammoniacal liniment three or four times a day, or until the skin becomes tender. Give the animal all the cool water it can drink and feed on laxative, nourishing diet. If treatment is begun in the early stages the chances for recovery are good.

Pleurisy.

Pleurisy is the term used to designate inflammation of the pleura or membrane lining the chest and covering the lungs. It is often complicated with pneumonia and then becomes more serious.

SYMPTOMS.—The symptoms are somewhat similar to those of pneumonia, except that the breathing is more painful; the elbows will stand out more than usual; the ribs will appear fixed and the breathing will be done by the abdominal muscles. There is generally a short, painful cough which sounds as if the animal was trying to suppress it. There will be a crease, called the "pleuritic ridge," running from the flank downward and forward along the lower ends of the ribs toward the elbows; the animal will walk with difficulty, as though stiff in the shoulders, giving a short, quick grunt at each step. In the beginning, if the ear is held to the side of the chest, a rasping sound will be heard; but, after a few days, this will be absent owing to the effusion of fluid into the thoracic cavity.

TREATMENT.—The treatment prescribed in pneumonia will be equally effective in pleurisy if begun in time. If there is no improvement after several days, effusion takes place, the chest begins to fill with water, producing the condition known as *hydrothorax*, when there is little hope for the patient except in the hands of the most skillful practitioner.

DISEASES OF THE DIGESTIVE ORGANS.

Choking.

Cattle are very liable to choke, especially when fed on roots, nubbins of corn, chopped pumpkins, or any other hard food.

SYMPTOMS.—The animal will stop eating, stand apart from the others, drool freely and sometimes gulp as if trying to swallow. The obstruction may also be seen and felt from the outside of the throat and neck. Sometimes when an animal has remained choked for some time there will be severe bloating which may have to be relieved by puncturing, as described under **Bloating.**

TREATMENT.—If the obstruction is up near the throat, place a gag in the animal's mouth and endeavor to reach the offending object and draw it out through the mouth. But, if the choke is low down or cannot be reached with the hand, a probang must be inserted and the object pushed down into the stomach. If the choke should be of bran or other ground food, or of oats, do not pass the probang, as it will only pack and make the matter worse. In this case a little oil may be poured down ; or better, a half pint of water in which has been dissolved a heaping teaspoonful of saltpetre, and then try to start the choke by working on the outside with the hands. If a choke cannot be removed by any other means it may be done by laying the walls of the esophagus or gullet open with a sharp knife, but

this will require the skill of a surgeon, and need not be described here.

Bloating.

Bloating is of very common occurrence in cattle, especially in districts where red clover is raised for pasture. Allowing animals to graze upon clover in the morning while the dew is on, or even when it is wet from rain, will often cause severe bloating. Frozen roots or vegetables of any kind, grass when covered with frost, half-wilted tops of garden vegetables are all likely to cause trouble.

Symptoms.—The symptoms cannot be mistaken. The left flank will be most prominent, being often raised above the level of the backbone, and having a drum-like sound when struck with the hand. When the stomach becomes greatly distended it presses forward upon the diaphragm and lungs so much as to interfere with the breathing; and if not relieved the animal reels, falls and dies of suffocation.

Treatment.—In moderate cases, where death from suffocation is not imminent, a heaping tablespoonful of pulverized charcoal mixed with water and given as a drench, and repeated in half an hour, is sometimes very effectual. Four drachms of carbonate of ammonia, given in a quart of water every half hour will often stop the formation of gas. But in urgent cases puncturing in the flank is the only resort. This is best done with trocar and canula, which every stock raiser should have and know how to use. In the absence of a trocar, a long, slender-bladed knife may be used. The point at which to puncture is high up on the left flank at an equal distance from the last rib, the point of the hip, and the transverse process of the vertebræ. An incision half an inch long should be made in the skin, the point of the trocar inserted and pushed downward and slightly inward and forward. The trocar should then be

withdrawn, leaving the canula in the opening until all the gas has escaped and its formation ceased. The trocar should then be inserted and the canula removed and a little carbolized oil rubbed on the wound. The animal should then have a pound of Epsom salt dissolved in half a gallon of water and given as a drench.

Indigestion.

Indigestion in the chronic form is of frequent occurrence among milk cows, especially in towns and cities where large quantities of corn chop and other heating food-stuffs are fed. Mouldy or course innutritious hay, or wintering around straw stacks will also cause it.

SYMPTOMS.—Staring coat, sunken eyes, loss of appetite, hollow flanks, dry, flaky, mucous-covered droppings, and sometimes they will be blood-stained and are always small in quantity. The muzzle will be dry at times and at others moist. The breathing is generally increased and the animal grunts and frequently moans, especially when moved.

TREATMENT.—The first step is to cleanse the bowels. If there is diarrhœa give a quart of raw oil If there is no diarrhœa give one pound or more of Epsom salt dissolved in half a gallon of warm water, repeating the dose if the first does not operate in twenty-four hours. When the bowels have been opened give the following dose twice a day until the bowels become regular: Bicarbonate of soda, powdered charcoal and powdered gentian root, of each half an ounce. Feed on oil cake, bran mash, roots or any other easily-digested, laxative food. If in summer give green grass; if in winter give good, sweet hay for roughness and allow plenty of good water at all times.

Constipation.

Constipation in cattle is always more or less associated with

indigestion, and the same treatment will apply to both. If the case is an obstinate one, a half a pint to a pint of raw oil every day or two will assist in keeping the bowels open.

Diarrhœa.

Diarrhœa sometimes becomes a very serious affection in cattle. It may come from chronic indigestion or it may be due to an overfeed of grain; it also frequently happens from eating some irritating or poisonous substance.

Symptoms.—The symptoms are very apparent. The discharge from the bowels is very profuse; it is often very dark in color and has a fetid odor. In the beginning there is generally great thirst, but no appetite for food. If the disease continues for some time the animal becomes so prostrated that it cannot rise to its feet, and the discharge becomes thin and watery.

Treatment.—It will do no good to give astringents to check the discharge until the bowels have been cleansed of all irritating substance; hence, one and a half pints of raw oil and two ounces of laudanum should be given at once, and if there is much pain, an ounce of laudanum and four ounces of raw oil may be given every two hours until the pain ceases. An ounce of hyposulphite of soda should be given every three or four hours, either in a quart of water or slippery elm tea. After the oil has operated, take four heaping tablespoonfulls of wheat flour and make into thin gruel by boiling over a slow fire; give this at one dose and repeat every six hours until the bowels begin to check. Feed on light, nourishing diet for a few days until the stomach has had time to recover from the shock.

Gastric Delirium.

This is a peculiar affection which I have frequently met with in Kansas, and to which I apply the above name for want

of a better one. I have never seen the disease in other than cows while giving milk. Some have called it ergotism, but with this theory I cannot agree. I have not seen a description of anything just like it in any of the works on veterinary science. So far, I have only met with it in the spring and early summer months; and from this I have attributed it to some impropriety in the winter and spring diet, or surroundings, prior to turning out to grass. It may be due to feeding on mouldy hay or grain. At any rate, the stomach seems to be the seat of the disease, and the brain, acting in sympathy with it, becomes delirious.

SYMPTOMS.—The symptoms vary somewhat in different individuals and in different stages of the disease. The first symptom generally noticed is a refusal of food, or feeding scantily; there will be decrease in the quantity of milk; the eyes will have a dull stare, and sometimes the animal appears dazed. I saw one cow that constantly licked her fore legs. Another gnawed the board fence—like a horse often does. As the disease progresses, the patient becomes more delirious and pushes with its head against a wall, fence or any other object with which it may come in contact.

TREATMENT.—Give a dose of Epsom salt sufficient to open the bowels (a pound or more to an ordinary cow) dissolved in half a gallon of warm water. Half an ounce of bromide of potassium should be given with the salt and the same dose repeated every four or six hours until the delirium subsides. In severe cases, cloths wet in cold water should be kept on the head. If the first dose of Epsom salt does not open the bowels in twenty-four hours a second dose should be given. For after-treatment an ounce of hyposulphite of soda may be given in drinking water two or three times a day.

Depraved Appetite.

Sometimes cattle are seen chewing old bones, licking a stone wall, eating earthy matter, etc. This generally indicates some gastric derangement and will nearly always yield to the treatment prescribed for indigestion. Some cows get into the habit of eating horse dung, probably due to starvation at first, unless it originates from the filthy habit which some dairymen have of feeding their cows upon the cleanings from livery stables, simply because they can get it for the trouble of hauling.

DISEASES OF THE EYE.

Injuries.

Cattle are liable to receive injuries to the eyes from brush and weeds while grazing; also from chaff and other substances getting into the eye, causing it to become inflamed and throw off a watery discharge.

TREATMENT.—Examine the eye carefully to remove any foreign body that may be there. If there is much pain, bathe the eye for ten or fifteen minutes night and morning with water as hot as can be borne with the hand. If the irritation is only slight, cold-water bathing will be all that is necessary. In very severe cases the animal should be kept in a dark stable in the brightest part of the day.

Bleeding Fungus.

This is a cancerous growth which sometimes affects the eyes of cattle. A fungus growth grows in the eye and tissues around it, protruding from the orbital fossa and sometimes crowding the eye out with it. There is a constant discharge and a fetid odor from it.

TREATMENT.—The only remedy is to remove the entire growth, eye and all tissues involved; scrape the bone clean and then apply powdered sulphate of copper to all raw surface and fill the cavity with cotton. In twenty-four hours the cotton should be taken out and the wound washed and dressed once a day thereafter with the following ointment: Pine tar and lard, of each, four ounces; acetate of copper, half an ounce; mix.

Contagious Ophthalmia.

Contagious ophthalmia in cattle is comparatively a new disease in Kansas, only having made its appearance about five or six years ago. It does not sweep the entire country, but is rather enzootic in its habits, although when it enters a herd it continues until all have had it. It is an inflammatory condition involving some of the inner structures of the eye and the eyelids.

Symptoms.—There will be a watery discharge from the eye; the lids will be kept closed. As the disease progresses, the eyelids will become swollen; the cornea will have a whitish color, and the animal will grow dumpish and lose its appetite. In very severe cases the swelling continues until the eye-ball is ruptured and its contents discharged, precluding all possibility of restoring sight.

Treatment.—Place the patient in a dark, cool stable; four ounces of Epsom salt should be dissolved in a quart of water and given as a drench twice a day; if the bowels become too loose, give only once a day. In mild cases, bathing twice a day with cold water may reduce the inflammation; but, if there is much swelling, bathe twice a day with hot water, and each time wipe the skin dry and apply a little of the following, all around and in the eye: Nitrate of potash, forty grains; sulphate of zinc, forty grains; fluid extract of belladonna, four drachms; water, one pint. If the eye-ball ruptures, syringe it out with the same lotion.

PARASITIC DISEASES.

Actinomycosis—Lumpy-Jaw.

Actinomycosis, or lumpy-jaw, is characterized by swellings on the jaws. The swelling may be on either upper or lower jaw and may be somewhat soft at first, but soon grows hard, as the disease affects the bone. It is due to the parasite *actinomysis*, a vegetable fungus supposed to be on the fodder or other food and enters the animal organism through some abrasion of the skin. It sometimes affects the tongue, causing it to thicken up and become hard, in which condition it is the so-called "woody-tongue." The general health of the animal does not appear to be much affected by the disease as long as the animal can masticate its food, but after a time the jaw becomes affected to such an extent that the animal can scarcely eat, then it soon becomes emaciated. Theorists differ as to whether the flesh of such an animal is fit for food. The safest plan is to let it alone.

TREATMENT.—There have been many methods of treatment prescribed and some "sure cures"(?) advertised. But the only thing most of them affect, with any certainty, is the owner's pocket book. The best treatment known for this disease at the present time is that recommended by the Bureau of Animal Industry, which is as follows: Give a daily dose of iodide of potassium, allowing fifteen grains for each one hundred pounds of the animal's weight. This may be dissolved in water and given as a drench, and should be continued until symptoms of iodism are produced, which will be in from ten to fourteen days.

The animal will become languid and disinclined to move about; the appetite will fail and there will be a discharge from the eyes and nostrils. In some subjects, not all, there will be a vesicular eruption of the skin; there will be abstinence from water, and elevation of temperature. When these symptoms occur, the iodide should be withheld for a few days until the appetite returns and the other symptoms subside, when the treatment should be repeated as before. The treatment should be continued in this manner until the enlargement begins to decrease in size, which may be two or three months.

Tuberculosis.

Tuberculosis, or pulmonary consumption, is an infectious disease due to the bacillus *tuberculosis* which, through various channels, invades the animal's body. The most important consideration, with regard to animal tuberculosis, is the bearing that it has upon the health of the human family. That animal and human tuberculosis, or consumption, are identically the same has become an established fact; and it is also the belief of the most scientific investigators that animal, and especially bovine, tuberculosis is, to an enormous extent, responsible for the same disease in the human race.

The disease may be communicated from the animal to the human being in various ways. The milk of diseased animals is known to be one of the most prolific sources of communication. The flesh, though not always, has been known to contain the bacilli, and, as many people eat their meat "rare done," it thus becomes a source of danger. The discharge from the nostrils and from abscesses of diseased animals falling upon the ground or upon stable floors, becoming dry and being taken up as fine dust by the moving air, may be inhaled by other cattle and also by human beings. Milk, containing the bacilli, spilled upon

floors of dwellings and dairy rooms, in this manner becomes a source of communication by inhalation, even to those who do not drink it.

A most serious aspect of this subject is the fact that this disease is not easily detected in its first stages; its progress is often slow at first, the animal being apparently in fair health for a year or two after the disease has begun its work. A case which came under my own observation was that of a cow belonging to Dr. S. D. Ross of Manhattan, Kansas. The subject was a high-grade Jersey cow, kept to supply the family with milk. Some time during the spring of 1892 the writer was called in and found the cow slightly indisposed, as if from a cold. There was affected breathing, and a slight wheezing sound in the lungs. Tuberculosis was mentioned at the time, but as we had no microscope and did not then know the use of tuberculin, no test was made; and, as after a few doses of stimulants and tonics, the cow seemed to recover, nothing more was thought of the case until two years after, when your humble servant was again called to deliver a calf from the same cow. The cow was very thin in flesh, and Dr. Ross stated that she had not been doing well for a month or two. The calf was dead, but was soon delivered, and when the placenta was taken away its uterine surface was found thickly studded with nodules and small ulcers. Having access this time to a microscope, the writer prepared several specimens, in each of which were countless numbers of the bacilli of tuberculosis.

Symptoms.—The symptoms are often so slight at first as to be almost unnoticed, or may be mistaken for a common cold. The animal may be slightly off its feed for a few days; the muzzle may be dry, and, if a cow, there may be a decrease in the quantity of milk. Good nursing, with a few doses of medicine,

soon checks the disease, and the animal is all right for a while. These attacks become more frequent and each one leaves the system in a worse condition until finally the symptoms never abate entirely. The hair will begin to look rough; the appetite will be capricious; the breathing will be affected; the animal cannot stand exertion; the ear placed against the side of the chest will detect a wheezing or whistling sound; there may be a cough and, as the disease progresses, there may be a discharge from the nostrils with a fetid odor; as the symptoms become more aggravated, there will be great emaciation; there will be complication with bowel troubles, and some times tubercular tumors or abscesses form about the head and neck and other parts of the body.

But, though these symptoms are sufficient to excite suspicion, the only true test is with the microscope, or by the hypodermic injection of tuberculin, both of which methods require experience. The disease is incurable, and as soon as its existence is proven, the affected animal should be destroyed and the carcass burned. The milk of tuberculous cows should not even be fed to pigs. The writer has seen several well-marked cases of the disease in swine.

Eruptive Aptha, or Pseudo-Foot-and-Mouth Disease.

This disease first made its appearance in the State of Missouri a few years ago and was thoroughly investigated by Dr. Paul Paquin, State Veterinarian of Missouri at that time, and found to be due to some vegetable parasite. Through a misconstruction of some statement made by the doctor, a report became widely circulated that the cases were of the true foot-and-mouth disease, and considerable excitement prevailed for some time; but this false report was corrected by the Secretary of Agricul-

ture at Washington, D. C , (if I mistake not) and the excitement, as well as the disease, soon became quiet.

Nearly every season since, there have been a few cases in Missouri and Kansas (and probably other Western States), but it has never become serious, and if any animal ever died with the disease it must have been because the owner neglected to furnish proper food for it while its mouth was sore, and it starved to death. The disease is simply an eruption of the mucous membrane of the mouth and of the skin of the body; and although the two diseases have many symptoms in common, yet it lacks the virulence of the foot-and-mouth disease of European countries.

Symptoms.—Small blisters form on the tongue and inside of the lips; these burst open, forming small sores, and sometimes the lips become dry and cracked. The animal eats readily if food is placed well back on the tongue, but cannot take it up because of the soreness of the mouth. The jaws are kept moving and the saliva flows freely. Small eruptions appear over the body; and about the udder and other parts where the hair is thin, the skin becomes of a reddish color. The soreness on the skin extends down to the feet and sometimes cracks form around the hoofs, and, in severe cases, the hoofs come off. The animal often gets very lame and is inclined to lie down a great deal.

Treatment.—If there is diarrhœa, give a dose of raw oil; if no diarrhœa exists, give a dose of Epsom salt sufficient to open the bowels moderately; give hyposulphite of soda in the drinking water to the amount of three ounces in twenty-four hours. Swab the mouth three times a day with the following: Alum, one ounce; water, one quart; mix. Sponge all sores on the body and feet with a solution of sulphate of copper,

one ounce, to water, one quart. Keep the patient in a cool, shady place, and feed on gruel, bran mash, boiled oats and other soft food.

While I know of no instance wherein the disease has been communicated to man from handling diseased animals, yet it will be a wise plan not to get any of the saliva from the mouth, or the discharge from the eruptions on the skin, in any sores that may be on the hands.

PARTURITION AND ITS SUBSEQUENT DISEASES.

Parturition.

Although cattle in their wild and untrammeled state, guided by natural instincts, scarcely ever have any trouble during the process of parturition, the changes in their mode of life, consequent upon domestication, have rendered timely assistance frequently necessary to a safe delivery. Hence, every one who has the care of cattle should be somewhat familiar with the proceedings in a case of natural presentation and delivery.

The period of gestation in the cow is, approximately, about nine months. Some cows, and especially heifers with first calf, go a week or two over, or a week or two under the regular time without causing any material difference in the offspring. A record of the date of service should always be kept as a guide to the time about when parturition can be expected to take place. As the time for calving comes near, the udder fills out with milk; the hips will begin to spread apart, and the muscles on each side of the backbone between the hips and the root of the tail become sunken.

When the time for delivery arrives the cow generally goes away from the others, if allowed to do so. There will be uneasiness, lying down and getting up again, as the labor pains come and go. In a short time the water bag makes its appearance, breaks, and the two front feet present themselves with the nose

lying between them. As long as the labor pains continue to come on and the calf is being forced through the passage, even though slowly, it is better, as a rule, not to interfere; but, if it seems to be on a "stand still" and the pains are diminishing, or the cow becoming weak from prolonged labor, aid may be given by pulling gently on the calf's feet just when the pain comes on, but at no other time.

If, after the water bag has been presented and broken, the pains subside, or continue for some time without the appearance of the calf's feet, the hand and arm should be well oiled and introduced carefully into the vagina to ascertain the cause of the delay. If there is a wrong presentation, endeaver to bring the calf into proper position. No special instructions can be of any service on this point; but only a few general hints will be given, leaving the operator to use his own good sense and judgement, according to the circumstances.

The proper presentaton is of the front feet and head, and if only a part of these are presented and the others lagging, bring them carefully into position. If the two hind feet are engaged in the passage, bring the calf away backwards. If both fore and hind feet be presented at the same time, retain the hind feet, return the front ones, and deliver the calf backwards. When delivery has been effected the cow will generally give the calf all the care that is necessary.

Parturient Paralysis.

It frequently happens after a difficult case of parturition, and sometimes where delivery was easy, that there is partial paralysis of the hind quarters. Sometimes a few days of good nursing will bring about recovery; but, if the cow does not show improvement by the second day, a moderate dose of Epsom salts should be given to open the bowels, and one drachm of nux vom-

ica combined with two drachms of nitrate of potash should be given twice a day. If there is still no improvement after five days, increase the dose of nux vomica to two drachms. The spine should also be rubbed three times a day, till sore, with ammoniacal liniment. Feed nourishing, laxative food and give plenty of fresh water to drink.

Parturient Apoplexy.

This is an affection of the brain and spinal cord and, although many different theories have been written in explanation of its origin, pathology and treatment, nothing very satisfactory has ever been reached. It generally attacks only the best milkers, and the best in flesh. It comes on within four or five days after calving, the earlier, the more likely it is to be fatal.

Symptoms.—First there will be a slight unsteadiness in walking; the patient will lie down, then get up again, showing uneasiness; there will be constipation and scanty urine. The symptoms may come on very rapidly and in a short time there will be paralysis of the hind quarters and inability to rise when down; the head will be thrown around to the side and there will be a snoring sound in the breathing, and in time the animal will become unconscious.

Treatment.—I have tried every remedy that I have ever seen prescribed in books or medical journals and the only one that has given any satisfaction is as follows: As soon as possible after the attack begins to come on give six drachms each of chloral hydrate and bromide of potassium dissolved in one pint of water, and, each two hours thereafter, give a dose of four drachms each of the chloral and potassium until three more doses are given, then gradually diminish the dose each time and also lengthen out the time between the doses. Great care must

be exercised to prevent choking while drenching, and just as soon as swallowing is done readily a dose of Epsom salt, sufficient to open the bowels, should be given. Plenty of drinking water should be given at all times, and a little nourishing food as soon as the animal will eat. The animal should be rolled over occasionally and be kept well bedded. Cloths wet in cold water should also be kept on the head for the first day or two.

Garget.

Garget is of frequent occurrence among good milkers, especially in cities where cows are highly fed. It is often the result of careless milking, but may come from exposure to cold or wet.

SYMPTOMS.—Part or all of the udder becomes swollen and hard, and is sometimes very painful, The milk becomes thick and curdled and somtimes the secretion of milk is stopped, and only a watery fluid comes from the teat.

TREATMENT.—Open the bowels with a dose of Epsom salt, then give half an ounce of nitrate of potash twice a day for a week. Bathe the udder twice a day with hot water, wipe dry and apply the following: Gum camphor rubbed fine, two ounces; fluid extract lobelia, two ounces; olive oil, six ounces; mix. Milk thoroughly clean several times a day.

Inversion of the Uterus.

Sometimes inversion of the uterus or "calf bed" takes place after the calf has been delivered. It can be known by the large bloody-looking, pear-shaped mass protruding or hanging from the vagina.

TREATMENT.—Remove all straw and dirt from the mass with warm water, and place a clean sheet under it to keep it from the ground. Oil the hand, insert the closed fist into one of the horns (two openings at the large end of the uterus), and push it as far in as possible; have an assistant to place his hands

against this and hold it while you do the same with the other side. When the entire mass has been returned take a large needle and a strong twine and put four or five stitches across the vulva or mouth of the vagina to prevent the uterus from being expelled again. If the cow continues to strain, a couple of ounces of laudanum may be given in a pint of water as a drench. After trying all other remedies to prevent the uterus from being thrown out again, I have found nothing else so effectual as blistering the cow along the spine with ammoniacal lininent. The stitches should be left in for six or seven days.

Retention of Placenta.

Sometimes the placenta or afterbirth does not come away. A pint of scalded flax seed fed to the cow will often have the desired result. If it does not come away it should not be taken sooner than twenty-four, nor later than forty-eight hours, as to take it sooner might cause bleeding and later than forty-eight hours, decay would begin.

MISCELLANEOUS SUBJECTS.

Mad Itch or Specific Cerebro Meningitis.

The so-called "mad itch" in cattle has long been a mystery to cattlemen, as it seemingly attacked cattle in all conditions, fat cattle in the feed yards frequently falling victims. Many causes have been assigned for the disease. Frozen pasturage, poisonous vegetation, corn cobs and husks which hogs had chewed and covered with saliva, and then dropped upon the ground, were supposed to be eaten by the cattle and cause the peculiar symptoms. But all these theories faded one after another as experimental tests only brought contradictory results. The disease has been described under different names, some even calling it hydrophobia. The name Specific Cerebro Meningitis was suggested by Dr. Paul Paquin; and by reading a report of some investigations made by Dr. Paquin regarding the disease, I find that my own views deduced from observation through several years of practice are not far different from his. The name, "mad itch," suggested by some of the symptoms seems to be the most known among stockmen.

It is well known that in many pastures cattle get their water supply from ponds; or if there is a stream of water running through the field it goes dry except a few deep holes. Now as the dry, hot weather comes on the water in these ponds or holes grows less in quantity and more filthy from the manure and from the tramping of the cattle until, finally, there is only a filthy, mucky mass left and the cattle go elsewhere for water.

After a few weeks the rains begin to fall; the old watering places are filled with fresh, clear water, and the cattle are turned into the old pasture again and in a few days begin to die.

There is some mystery the owner cannot comprehend. He does not look to the water for the cause, for he knows that it looks better than when the cattle were in the field before. He does not know that during this undisturbed period the old pond was a regular hot-bed for the development of fungi and micro-organic ferments; that in that clear, fresh water, so inviting to thirsty throats on a hot summer's day, lies the death dealing germ that is causing such terrible havoc among his cattle. There have been outbreaks of this disease where no pool of stagnant water existed; but examination proved the soil to be of that moist, mucky character favorable to the development of disease germs, and, as it dried out, it was left full of deep indentations from the hoofs of the cattle. When the rain fell, these indentations were filled with water, and the cattle drank from them, thus taking in the germ as from the water in the pond.

Sharp frosts and cold weather tend to check the ravages of the disease; but it starts again with warm weather, and, if the cattle are not removed, continues until the summer heat dries up the water. There is no cure for the disease when an animal once takes it. The only hope lies in preventing it.

Symptoms.—There will be a dull, and sometimes anxious, look about the eyes; loss of appetite; suspension of rumination; dribbling of frothy saliva from the mouth; shivering of the muscles; sudden jerking of the feet; lying down and immediately getting up; walking with an unsteady gait; shaking of the head, with frequent attempts to scratch the shoulders and sides with the horns; rubbing the head and neck against other objects; sometimes holding the head near the ground, and at other times

holding it high in air. As time goes on the symptoms become more aggravated; the eyes assume a wild, staring, frenzied appearance; the animal will sometimes give a sudden start, snort, bellow, and run as if attacking some imaginary foe; it will often attack anything that may come in its way, man or beast, in a most threatening and aggressive manner. Thus the animal goes on for several days, when it generally sinks to the ground, either from exhaustion or paralysis, and often becomes comatose before it dies. These symptoms will not all be exhibited in every case; some cases will be mild and, to some extent, controllable; while others will be so frenzied and vicious as to lead the attendant and, sometimes, even inexperienced veterinarians to pronounce it hydrophobia.

PREVENTATIVE.—When possible, water only from deep wells or running streams. If ponds must be used, clean them often, and, if the disease breaks out, move to higher ground, and change feed and water.

Infectious Abortion.

It is a well known fact that outbreaks of abortion among cows frequently occur in certain localities which cannot be traced to any visible or ordinary cause. No condition of flesh or health seems to be exempt, but fat and lean alike fall victims to the infection. These abortions generally occur at some time from the fourth to the seventh month of pregnancy and generally without any premonitory symptoms. In some instances the abortions of different cows have seemingly occured at regular intervals of a certain number of days, which might point to a necessary period of incubation. Experiments of smearing the vagina of a cow with the mucus from a cow that had just aborted, have produced abortion, thus proving that it can be communicated from one cow to another; but the fact that the succeeding

cases in a stable have often stood far apart from the preceding ones, goes far to prove that actual contact is not necessary to its communication

As no curative treatment has ever yet given satisfaction, the preventive treatment is the only one to be recommended.

First, when an abortion occurs, get rid of the fœtus and all its membranes by burning; gather up all straw and other litter that may have become infected, and burn this also. If in a stable, close all doors and burn sulphur until the fumes penetrate every crevice, then whitewash all walls with a strong lime wash to which has been added a pound of salt to each two gallons of the wash, and sprinkle all floors with the same.

Gonorrhœa.

Occassionally a bull, from serving a cow suffering with leucorrhœa, will be attacked with an inflammation of the penis and mucous membrane lining the sheath which, if allowed to continue, often causes ulcers on the penis and swelling of the sheath. There is a muco-purulent discharge through which the disease will be communicated to cows if served by the bull while suffering with the disease.

TREATMENT.—The affected parts should be thoroughly cleaned with warm water and, if ulcers exist, they should be touched with nitrate of silver. After the first cleansing, wash the inflamed part once or twice a day with cold water, and each time make an application of the white lotion as described in Medicines and How to Prepare Them. When cows become affected, syringe out the vagina with warm water and inject the lotion.

Blackleg.

This is a disease which affects only young cattle, and is due to a micro-organism taken into the system from the soil in some

localities. As many theories have been advanced regarding the origin of the disease, its treatment and prophylactic measures, we will not discuss the merits or demerits of these different theories here, but enter at once upon a description of the plans most feasible to the farmer for saving his cattle.

It has often been said that "only fat cattle take the disease." While this is not true, yet it is a fact that only those which are thriving rapidly take it no matter whether fat or lean. And it is also a fact that depletion or a sudden check in the thriving of an animal will check the ravages of the disease, for the time being at least.

SYMPTOMS.—At first there will be loss of appetite and rumination will cease; a slight lameness may be noticed, gradually growing worse until the animal is unable to rise to its feet when down. There will be swelling in the lame limb, and, if the hand is rubbed over this gently, a crackling sound will be heard from underneath the skin. If the skin is split open, the blood will be of a black tarry appearance and too thick to flow.

TREATMENT.—After an animal is down and unable to stand upon its feet when helped up, no medicine will save it. But, if found while yet able to walk about, give a dose of Epsom salt, raw oil or melted lard, sufficient to open the bowels, then get upon a horse and keep the patient on a trot for an hour or two unless the bowels open freely sooner. If you succeed in getting a full, free evacuation of the bowels, the chances are you will save the calf. Also as soon as a case of blackleg is found among a lot of young cattle, the entire lot should be taken from the pasture and put in a high, dry yard where they can get neither water nor feed for twenty-four hours. It may also be well enough to give each animal a dose of Epsom salt to open the bowels. The animals should not be returned to the same pasture,

but should be kept on higher and drier ground. Many preparations have been recommended as preventatives, but experience has proven them all to be of doubtful value A mixture composed of common salt, wood ashes, sulphur and saltpetre, will be found as good as any. It should be kept in troughs in the pasture where the cattle can get it at will.

We do not wish it understood that we ignore the theories that have been advanced by learned men in regard to this disease. On the contrary, we appreciate every effort of science to fathom the true cause of, and to discover a preventative against the disease, and, as preventive inoculation in the hands of some of our most noted scientists has produced comparative immunity from the disease, we recommend every farmer to give it a trial when opportunity affords; but until such opportunity is afforded, we recommend the afore-described treatment, which we have given many trials and have never yet failed to check the ravages of the disease for the time being.

Snake Bites.

Sometimes it happens that animals are bitten by poisonous reptiles. If the wound is discovered immediately after it has been inflicted, the best plan is to cut it out and touch all raw surface with lunar caustic; but it is not always seen in time for this.

ANTIDOTES.—Dissolve half a pint of common salt in a quart or two of water and give as a drench, and bind salt moistened with hot water on the wound. Whiskey may be given in half pint doses every hour. An ounce of aqua ammonia well diluted with water and given every hour is good. The wound may also be bathed with ammonia. If great swelling takes place, little can be done.

Cornstalk Disease.

The disease known by this name is characterized by symp-

toms of indigestion followed by delirium. Various opinions have been advanced in regard to its cause, but no satisfactory treatment has yet been found. It is believed by some to be due to a minute parasitic fungus which grows upon stocks and blades of fodder left standing in the field, while others adhere to the theory of impaction in the stomach. As we are not in possession of anything from late investigations which will throw any light upon the subject, we copy an article written by the author of this work a few years ago on the latter theory and published in the *Kansas Farmer*.

"This affection has been known for ages past, under the different names of 'dry murrain', 'fardle-bound', 'grass staggers', 'impaction of the manyplies', 'wood evil' and 'indigestion'. The different names simply indicate the ideas of the different individuals in regard to the nature of the disease, its causes, etc., according to the construction they each placed upon the peculiar symptoms exhibited by the animals affected. But, by whatever name the disease may be called, the pathology is just the same, namely, a disordered condition of the stomach, an imperfect performance of its functions, and either a partial or a total suspension of the process of digestion. The peculiar construction of the stomach of the ruminant or cud-chewing animal, makes its mode of feeding so intirely different from that of the non-ruminant, that, in order to make the subject more closely understood, a description is necessary. The stomach of the ox is very large as compared with that of the horse, and capable of containing a great amount of food. It is divided into four distinct compartments as follows: The rumen or paunch, reticulum or second stomach, the omasum or third stomach, sometimes also called the manyplies, and the abomasum or fourth stomach. The rumen is the largest of the four divis-

sions, and is equal in capacity to all the others combined The esophagus or gullet through which all food and drink passes from the mouth to the stomach, enters the rumen near its junction with the reticulum or second stomach, and continuing along the roof of the second stomach, not as a complete tube, but in the shape of two movable lips attached by one border to the walls of the second stomach, the other border being free, it enters the third stomach by a circular orifice. These lips, when open and passive, allow all food as it is swallowed to pass into the rumen, but, when they are drawn together, they form a channel known as esophageal groove and through which food can pass directly into the third stomach, and thence into the fourth, without stopping in the first or second. At the entrance of the esophagus into the rumen are also numerous small, fleshy points or papillæ, which help to work the food to the place where it should go.

Now, when any ruminating animal feeds upon grass, hay or other coarse material, the food passes very rapidly and with very little mastication into the first stomach, where it becomes saturated and softened by the fluids supplied by that division, and also by the saliva which is secreted by the salivary glands and poured down the animal's throat, and by a sort of churning process, caused by the contracting and relaxing of the muscular walls of the stomach, it is prepared for the next step in the process of digestion. From the first stomach the food is gradually worked into the second, where it is worked into pellets or cuds and, by a peculiar spasmodic action, is thrown up by the reticulum, and grasped by the esophagus and returned to the mouth to be remasticated, when it is again swallowed, this time passing along the esophageal groove into the third stomach. This division is made up of numerous folds or leaves, between

which the semi-ground food passes, and again undergoes a triturating or grinding process, and is then passed on to the fourth or true digestive stomach, where the process of digestion is easily completed. But should the food be more of the nature of chaff, or finely broken fodder, a great amount of it passes by the first and second stomachs into the third, where, if the food be of an especially dry and non-nutritive character, it becomes lodged between the manyplies, and not being saturated as it should be with the liquids from the first and second divisions, the fluid secreted by the third division alone is insufficient, and the result is an impaired condition of the stomach and the beginning of a case of impaction. Now, if this is allowed to go on day after day without change of food, the impaction increases, until finally the spaces between the manyplies become entirely filled up, leaving only a small channel through the lesser curvature of the stomach, along the edge of the manyplies, through which only food in a semi-fluid state can pass. The other divisions soon become affected, through sympathy with this one, and there is complete suspension of the functions of the entire digestive tract. Then the sensory nerves soon begin to transmit the disordered sensations to the brain, hence the train of nervous symptoms, so often seen in such cases.

When the brain has once become seriously affected, I do not think any treatment can save the animal. But, if the case can be taken when the animal only appears stupid, with impaired appetite, it will pay to treat it. Give Epsom salts, from one to two pounds, according to size of animal, dissolved in half a gallon of warm water, with one pint of molasses added, and follow with two quarts of warm linseed tea, or thin gruel, every two hours, and injections of warm water per rectum, and moderate exercise occasionally. If the medicine does not operate in twenty-four hours, repeat the dose, and continue the other treatment as

before. But as our object in the beginning was to throw some light on the trouble in cornstalk feeding, we will proceed to that. It is a mystery to some why cattle will sometimes feed in one stalk field for weeks without any loss, and then be changed to another, and soon begin to die rapidly. Also that they will be turned into a field and seem to do well for a week, and then suddenly the mortality will begin. And then again, we often hear, that of two neighbors living side by side, one turns his cattle in the field and lets them remain there, with no loss whatever; while the other turns his in only a few hours at a time and tries to take every precaution against loss, as instructed by writers on the subject, yet his cattle will die as if a curse had been set upon them. This, we think will all be clear enough if we will note the difference in the condition of the fields. If the corn is of good, large growth and well matured, the danger is not very great. But if the stalks are small and not matured, the cob soft and spongy, the grains undeveloped, and the ears half covered with smut; blades, stalks and all, bitten by the frost and then dried by the sun and wind until they are capable of being ground up fine enough by a few strokes of the jaw, so that when swallowed, the whole mass will pass at once into the third stomach, and, being very dry and of almost no nutritive value, finds lodgment there from day to day, until the stomach becomes filled to such an extent that no medicine will relieve it.

A few good ears of corn may have been left in the field to be gathered by the cattle, and this will ward off the catastrophe for a few days, and thus account for their not dying when first turned in. In view of these facts, then, we should be able to form some idea of a preventive treatment.

In the first place, the cattle should have free access to both salt and water, and should be driven to the latter every day, if

they do not go of their own accord. They should never go into the stalks except with full stomachs; they should not be left in over an hour at a time, and after the first two days leave them out a day, and continue in this way two days in and the third day out for at least two weeks, and when they are out of the stalks do not turn them into an old dry field to go hungry till the time comes to go into the stalks again, but feed liberally on good hay or well cured, green-cut fodder, accompanied by corn, bran, oil-cake, sliced roots or anything else that will form a nutritious and laxative diet, and see that they eat it before they are again allowed to enter the stalk field, and they should still be fed a little grain of some kind, even after they have become accustomed to the stalks. If this method of feeding does not prove a complete remedy it will at least lower the death rate, and those that live will be all the better for having had the extra care."

INDEX.

PAGE.

Age of the Horse, How to tell 114
Abortion, Infectious in Cows 146
Apoplexy, Parturient in Cows 141
Actinomycosis 133
Aptha, Eruptive in Cattle 136
Azoturia 50
Anasarca 69
Bronchitis 20
Broken Wind 22
Bleeding, Nasal 22
Bots 35
Bleeding Fungus in Horses 61
Bleeding Fungus in Cattle 131
Bone Spavin 86
Bog Spavin 86
Blind or Occult Spavin 88
Bruises of the Feet 91
Breeding 106
Bladder, Inflammation of 49
Bloating 126
Bloody Urine 50
Blackleg 147
Cornstalk Disease in Horses 36
Cornstalk Disease in Cattle 149
Cocked Ankles 97
Castration 101
At what Age to 101
Season for 102
Health of Animal for 103
Operation of 103
Bleeding after 105
Swelling after 106
Care of Mares 107
Care of Foal 108
Catarrh in Horses 17
Catarrh in Cattle 122
Choking in Horses 29
Choking in Cattle 125
Constipation in Horses 33

PAGE.
Constipation in Cattle 127
Capped Elbow 76
Corns 80
Curb 88
Capped Hock 89
Canker 94
Calks 95
Contraction 97
Callouses 73
Calcareous Degeneration 73
Chronic Cough 26
Colic, Flatulent 30
Colic, Spasmodic 32
Cerebro-Spinal Meningitis 39
Chorea 44
Colt Distemper 17
Congestion of the Lungs 23
Disease, How to Recognize in Horses 11
Disease, How to Recognize in Cattle 119
Doses, Graduation of 14
Doses, to Measure 14
Distemper 17
Diarrhœa in Horses 34
Diarrhœa in Cattle 128
Diabetes 51
Dribbling of Urine 52
Dislocations 98
Depraved Appetite 130
Dysentery 34
Eye, Injuries to, Cattle 131
Contagious Ophthalmia, Cattle 132
Simple Ophthalmia, Horse 59
Specific Ophthalmia, Horse 60
Puncture of Eyeball 59
Torn Eyelids 62
Eczema of the Skin 63
Enteritis 33
Epilepsy 35
Erysipelas 48
Epistaxis 22
Fistula of the Withers 72
Fractures 98
Farcy 111
Founder, Acute 89

PAGE.
Founder, Chronic 90

Garget 142
Gonorrhœa, in Horses 54
Gonorrhœa, in Cattle 147
Gravel 94
Glanders 109
Gastric Delirium 128
Grease Heel 68

Hipped 83
Hydrocele 53
Hen Lice 65
Heaves 22
Hydrothorax 25
Heart, the 46

Inversion of the Uterus 42
Introduction to Part First 11
Introduction to Part Second 119
Indigestion in Horses 30
Indigestion in Cattle 127
Indigestion, Chronic in Horses 30
Inflammation of the Bladder 49
Of the Testicles 53
Of the Womb 56
Of the Udder 56
Of the Brain 38
Of a Vein 47
Of the Kidneys 49
Of the Lungs, Cattle 123
Of the Lungs, Horses 23
Inco-ordination of Movement 43
Immobility 44
Influenza 19

Knee Sprung 78

Lumpy-jaw 133
Laryngitis 20
Lightning, Shocked by 40
Locoism 111
Lice 65
Leucorrhœa 57
Lymphangitis 69
Lampas 29

PAGE.

Lameness 74
Knee joint 77
Pastern joint 79
Elbow joint 77
Melanotic Tumors 67
Mange 67
Medicines, How to Mix Them 15
How to Administer Them 12
Care of 15
Their Action in Cattle 119
Mad Itch 144
Megrims 35

Navicular Disease 82
Nail Puncture 91
Nasal Gleet 21
Nursing and Feeding 12

Open joint 99

Pleurisy, in Horses 25
Pleurisy, in Cattle 124
Purpura Hemorrhagica 26
Peritonitis 33
Paralysis 42
Paralysis, Parturient in Cattle 140
Placenta, Retention of 143
Patella, Dislocation of 84
Pumiced Foot 91
Pneumonia in Horses 23
Pneumonia in Cattle 123
Pinkeye 19
Phymosis 53
Paraphymosis 53
Perineum, Rupture of 58
Poll Evil 72
Pulse, Horse's 11
Pulse, Cattle 120
Parturition, in Cattle 139
Prurigo 63

Quarter Crack 79
Quittor 92
Rupture in Foals 108
Roaring 25
Rheumatism 47
Ringbone 96

PAGE.
Respiration, Horse 11
Respiration, Cattle 120
Ring Worm, Horses 63
Ring Worm, Cattle (See Horses.)
Summer Sores 64
Scratches 67
Swelling of the Sheath 70
Strangles 17
Sweeny 75
Splint 78
Seedy Toe 81
Sidebones 97
Stringhalt 44
Shivering 44
Sunstroke 39
Snakebites 149
Scirrhus Cord 106
Sprain of Back Tendons 81
Of Suspensory Ligament 82
Of Hip Joint 83
Of Stifle Joint 85
Of Flexor Metatarsi 85
Stifled 84
Teeth 28
Tongue 29
Tetanus 41
Temperature, Horse 12
Temperature, Cattle 120
Toe Cracks 79
Thoroughpin 87
Thrush 93
Tuberculosis 134
Urticaria 64
Wolf Teeth 29
Worms 36
Warts, Ordinary 66
Bleeding 66
Wounds, Their Treatment 71
Wind Galls 79

DR. S. C. ORR,

MANHATTAN, KANSAS,

VETERINARY SURGEON and DENTIST.

Graduate Ontario Veterinary College, Canada.

VETERINARY EDITOR TO

KANSAS FARMER, Topeka, Kansas.
HOME, FIELD and FORUM, Guthrie, Oklahoma.
AMERICAN FARMER and FARM NEWS, Springfield, Ohio.

Proprietor

Dr. Orr's Veterinary Medicines.

All Diseases of Domesticated Animals Treated. Special Attention Given to Castrating "Ridgeling" Horses (Cryptorchids) and Spaying Cows. Calls Attended to any Distance at Reasonable Rates.

Board and Hospital Accommodations Furnished Patients at Moderate Rates.

Parties at a distance not caring to incur the expense of a trip often write us to prescribe by mail. A long and varied experience has enabled us to do this satisfactorily in cases where a little delay is of no consequence. Write symptoms plainly; give age, sex, color, weight and breed of animal; enclose fee, $1.00, and a prompt reply will be given. Each additional letter containing a prescription, 50 cents. When writing merely to ask questions, where no treatment is required, a stamp should be enclosed for reply. This is but a small matter to each individual, but amounts to dollars to us.

LIBRARY OF CONGRESS
0 002 825 443 A